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The Anatomy of a Controlling Message and the Impact of Reactance on Attitude Certainty

By

Thomas V. Staunton Jr.

Claremont Graduate University

2022

Approval of the Dissertation Committee

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Thomas V. Staunton Jr. as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Psychology.

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Abstract

The Anatomy of a Controlling Message and the Impact of Reactance on Attitude Certainty

By

Thomas V. Staunton Jr.

Claremont Graduate University: 2022

Psychological reactance theory (Brehm, 1966) has helped guide research on resistance to persuasion for over a half century. The theory holds that individuals value their freedom to make their own decisions, and when presented with a persuasive message, may perceive threat to their autonomy and react adversely to the message. Impersonal or mass disseminated messages, particularly those in pro-social or health related contexts, often must communicate in a manner that is direct and forceful to get a clear point across as efficiently as possible. Such messages can be characterized as high controlling (HC) and are generally constructed by using explicit language in conjunction with choice-restricting phrases. Although HC messages tend to elicit reactance, scholars have argued that they hold value in certain contexts (e.g., Shen, 2015). Further, when people experience reactance against a HC message, and ostensibly resist persuasion, little is known about the relationship between reactance and attitude certainty. Three studies were conducted to a) test the interplay between varying levels of explicitness and dominance in persuasive messages and b) to examine how the experience of reactance impacts attitude certainty toward the topic of a message. Study 1 found choice-restricting language, and not the degree of explicitness, to be responsible for adverse outcomes, suggesting that messages, if carefully constructed, could benefit from the quality of being explicit with little concern for eliciting reactance. Results from both Study 1 and Study 2 indicated that when people are presented with persuasive messages, particularly messages that inspire reactance, they are more

likely to report less attitude certainty than those presented with a non-persuasive message. A third study attempted to further reduce attitude certainty by using feedback mechanisms designed either to call attention to the receiver's reactance as an illegitimate strategy for rejecting a message or to request receivers to take the perspective of the counter-position to help generate arguments in favor of the opposing view. The feedback options utilized in Study 3 failed to reduce certainty compared to a no-feedback condition. Overall, the findings of the current dissertation suggest that a) explicit language can be used in conjunction with choice-enhancing language to create messages that are clear and direct yet free from the threat of reactance and b) the certainty with which people hold their reported attitudes are more likely to be diminished than they are to be bolstered after experiencing reactance.

Dedication

I dedicate this dissertation to my family. To my father, Thomas Sr., a practical man, thank you for all your support and for giving me only minimal, good natured ribbing for pursuing my education to this end. To my mother, Marcia, thank you for instilling in me the value of education through not only your own pursuit of higher education but also the pride you expressed for Grandpa Valenzuela's academic achievements. There is no possible way I could have reached this point without the love and support of my parents. Thank you to my sisters: Bobbie, Heather, Elizabeth, and Kimberly for being protective and encouraging since I was young. Finally, I would like to thank Melissa and Declan. Melissa, you've been understanding and supportive throughout my journey and you have been a wonderful mother to our son, Declan. Declan, you are the best. You motivate me to be the best version of myself. You all have played a part in this. I love you all.

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CHAPTER 1: Introduction

Creating effective and impactful mass communicated messages, particularly those pertaining to pro-social and health related contexts is a challenging task. This is a problem for those charged with convincing people why they should (e.g., eat healthy) or should not (e.g., smoke) engage in certain behaviors. For a communication attempt to be persuasive it first must stimulate interest so that an audience will attend to the content of the message. However, efforts at stimulating interest often result in failed persuasive attempts. The process from interest to acceptance is difficult as people often are skeptical and resistant to influence attempts (Crano et al., 2019; Palmgreen et al., 1991; Wang et al., 2015).

Psychological reactance theory (PRT; Brehm, 1966) is a classic psychological theory that helps explain the difficulty in achieving persuasive ends by contending that people typically value their decision-making autonomy and are not willingly open to being persuaded. PRT has guided research for more than a half century across a range of fields focused on overcoming resistance to persuasion including social, health, and clinical psychology. Early researchers were concerned primarily with identifying the antecedents and consequences of the reactance process. More recently, researchers have attempted to identify the composition of the construct as well as specific message features that influence how persuasive messages are received. Although the seminal studies (e.g., Brehm & Cole, 1966; Brehm & Sensenig, 1966; Brehm et al., 1966) in the theory generally involved interpersonal contexts or dyadic settings for communication, recent studies have extended the theory to more mass distributed forms of communication (e.g., public service announcements; Dillard & Shen, 2005; Shen, 2011).

Of particular interest to scholars has been identifying the message types and message features that tend to either avoid or arouse reactance (Quick et al., 2013). One of the most

frequently studied features of persuasive messages is the level of threatening or controlling language present in a persuasive appeal. It has been well-established that messages that use highly controlling (HC) language will generally arouse reactance. However, scholars also are aware that highly explicit forms of communication also can help foster positive outcomes. Explicit language is clear, direct, and easy to understand, relative to implicit or subtle forms of language (Grice, 1975). The challenge is to identify strategies to clearly and effectively communicate important messages, while also avoiding reactance (e.g., Gardner & Leshner, 2016; Miller et al., 2007; Staunton et al., 2020).

One possible dilemma in the quest to have our cake and eat it too is the way controlling language is conceived and operationalized in PRT research. In their review, Quick and colleagues (2013) noted the myriad of designations to refer to controlling language (e.g., explicit, domineering, intense), which often are used interchangeably and synonymously to describe communications that tend to threaten one's sense of autonomy. In an interpersonal context paradigm, Dillard, Kinney, and Cruz (1996) claimed that influence messages can vary in terms of explicitness and dominance, thus suggesting that controlling messages are the product of two factors. However, when utilizing impersonal contexts, Dillard and Shen's (2005) seminal study purposely conflated explicitness and dominance as illustrated by their research objective "given the goals of this study, our aim was not to attempt to advance understanding of the impact of specific message features on reactance. Rather we sought to create a strong manipulation..." (p. 148) and by stating "a review of the literature suggested that these aims could be achieved by purposely confounding *intent to persuade* and *language intensity* (p. 148). Dillard and colleagues' (1996) distinction between explicitness and dominance may yet prove essential to our understanding of how to construct effective mass communicated messages.

Another line of inquiry for the present dissertation concerns the relationship between experiencing reactance and the degree of certainty one holds in relevant attitudes. Early persuasion research, such as inoculation theory (McGuire, 1964), assumed that resistance to persuasion often strengthens attitude certainty and thus impacts subsequent persuasive attempts. However, according to the metacognitive framework espoused by Tormala and colleagues (e.g., Tormala & Petty, 2002), certainty may only increase when individuals perceive they have done well in resisting a message (e.g., strong messages; Tormala & Petty, 2002). Conversely, when individuals perceive they may have done a poor job resisting, such as generating weak counterarguments (Tormala et al., 2006) or rejecting based on illegitimate grounds (e.g., minority influence; Tormala et al., 2007), they may lose confidence in their positions. Ultimately, according to this metacognitive framework, certainty is dependent on the appraisal of one's own resistance performance.

The structure of this dissertation will begin with an overview of the basic tenets and assumptions of PRT followed by a discussion of the recent developments in the field including the identification of measures used in PRT research and moderating variables that have been found to affect the way in which persuasive messages are received. The next major section reviews the types of messages and message features that facilitate or inhibit reactance, followed by an in-depth exploration of the pros and cons associated with the use of controlling language. Next is a survey of strategies designed to profit from controlling language, while mitigating its potential negative impact, followed by an examination of how reactance impacts attitude certainty. Finally, three studies were conducted to test a) the specific functions explicitness and dominance play in constructing a (non-interpersonal) controlling message b) how certainty is negatively or positively affected by various types of influence messages, and c) whether certainty

can be manipulated by feedback procedures designed to suggest that resistance to the message was based on illegitimate means. The overall purpose of these studies was to deconstruct the nature of a (non-interpersonal) controlling message and introduce the concepts of attitude certainty and metacognitive processes to PRT literature.

CHAPTER 2: Literature Review

Psychological Reactance Theory Overview

The foundation of PRT follows from one simple premise: “freedom of behavior is a pervasive and important aspect of human life” (Brehm, 1966, p. 1). Individuals have a basic need for self-determination, they desire autonomy, and value their capacity to make their own decisions and control their own environments—individuals wish to be the masters of their own fate (Burgoon et al., 2002). In fact, Brehm goes so far as to state: “given some minimal level of valid knowledge about oneself and the environment, freedom to choose among different behavioral possibilities will generally help one to survive and thrive” (Brehm, 1966, p. 2). Any attempt at disrupting or restricting an individual’s freedom to behave in the manner of one’s choosing is likely to be met with resistance, specifically a type of resistance that Brehm identified as psychological reactance (1966), a psychological state that motivates an individual to restore a threatened or lost freedom. To understand the reach and impact that PRT can have on the broad subject of persuasive communication, it is important to first grasp the basic tenets of the theory including the assumptions on which the theory rests as well as the components by which the reactance process proceeds.

Theoretical Assumptions

There are two basic assumptions that underlie PRT. The first is that people have free behaviors, which they can engage in at the present or sometime in the future (Brehm, 1966). Free behaviors must be realistically possible, for instance consuming a fifth of whiskey on one’s lunch break is a free behavior (albeit not recommended), whereas flying over Downtown Los Angeles traffic during rush hour wearing little more than a cape is unrealistic and thus not a free

behavior. Individuals must possess both physical and psychological abilities and must be cognizant of such abilities and competences to exercise a free behavior.

The second assumption is that whenever a free behavior is eliminated, threatened with elimination, or reduced in any way, the transgressed party will experience reactance and will thus be motivated to restore the lost, threatened, or reduced freedom (Brehm, 1966). Because freedom of behavior is such an intrinsically important aspect of human life, the elimination or threat of losing a freedom will psychologically arouse and motivate the individual to reestablish the freedom. The way a threatened or lost freedom can be reestablished or restored can take many forms depending on factors that stem from the reactance process itself.

Four Components of Reactance

There are four essential components to the reactance process, which occur in succession (Brehm & Brehm, 1981; Quick et al., 2013). First, there is a freedom or set of freedoms held by an individual. Second, there is an elimination or threat to one or more of these freedoms. Third, is the experience of reactance and motivation to rectify any transgression. The fourth and final component in the reactance process is restoration, that is, the method by which the transgression is mollified.

Freedoms. Individuals, in most situations, possess a myriad of free behaviors. Brehm (1966) broadly defined freedoms to include not only actions but also emotions, opinions, and attitudes. According to Brehm and Brehm (1981) free behaviors are “not abstract considerations, but concrete behavioral realities” (p.12). Freedoms exist to the extent that individuals are psychologically aware of and perceive themselves as capable of engaging in or enacting the free behaviors. The range of potential freedoms that people can possess is vast and the criteria for

such freedoms to exist is subjective, thus knowledge of and confidence in one's ability to possess the freedom is generally considered sufficient for the freedom to exist (Brehm & Brehm, 1981).

Elimination or threat to freedom. When a freedom is blocked to the extent that an individual is prevented from engaging in the free behavior, the freedom is considered irrevocably lost and thus eliminated. For instance, an individual sentenced to life in prison has had the freedom to travel the world eliminated. On the other hand, threats occur when a freedom is made more difficult to engage in or there has been suggestion of future elimination of the freedom; however, full blockage has yet to occur. For instance, a city ordinance that restricts the purchase and public consumption of alcohol to three days a week could threaten people's freedom to buy and enjoy alcoholic beverages according to their typical schedule. Both elimination and threats to freedom can stem from a variety of sources including impersonal events (e.g., rain preventing one from going to Disneyland) and social influence attempts (e.g., public service announcement condemning smoking). Persuasive communications are often of the mass mediated variety (e.g., health campaigns), where recommendations or suggestions provided in such contexts are generally considered threats to freedom rather than the elimination of a freedom.

Reactance. The level of reactance experienced will depend on several factors which present along a continuum and include a) the importance of the free behavior, b) the proportion of free behaviors threatened, and c) the magnitude of the threat. In terms of importance, a freedom is considered important when it is perceived as the only avenue for satisfying a need and is thus more likely to generate stronger reactance when threatened or eliminated (e.g., smoking is the only way to satisfy one's nicotine craving), relative to freedoms with many perceived avenues for satisfaction (e.g., drinking Coke, Sprite, water, lemonade, or Gatorade are multiple ways to quench one's thirst). As for the proportion of freedoms threatened, the strength of

reactance will be greater as the proportion of behaviors that are threatened or eliminated increases. Given the options of Coke, Sprite, water, lemonade, or Gatorade to drink and assuming all options are roughly equal in terms of attractiveness, the elimination of Coke *and* Sprite would generate greater reactance than if *just* Coke were eliminated.

Finally, when there is only the threat of elimination, the magnitude of threat will determine the level of reactance generated. The level of reactance can stem from a variety of variables including the source of the threat, the number of threats, and the implication of future threats. The source of a threat, authority figures (e.g., teachers or employers) for instance, have more power over individuals than do peers or subordinates (e.g., classmates or coworkers), thus they are more likely to garner attention and indicate a greater level of seriousness and threat. For the number of threats, Brehm and Brehm stated that “in any given situation there may be more than one threat to a given freedom” (p. 71), thus if a freedom is threatened on multiple occasions or in a variety of forms, the level of reactance may increase. People also might be wary of future or implied threats. For example, an American with conservative political leanings might be vigilant of any discussion concerning the second amendment and any limitation on the purchasing of firearms, as the American might think “what are they going to take from us next?”

Restoration. The final component in the reactance process is restoration of the threatened freedom, which may be satisfied by direct or indirect means. Direct restoration involves the threatened party to engage in the very behavior that is being threatened (e.g., a college student drinking beer after being told that alcohol is forbidden on campus after a certain hour). Indirect means include restoration by implication (i.e., reestablishing a freedom by engaging in a similar or related behavior to the one that was threatened or eliminated; Brehm, 1966), vicarious restoration (i.e., witnessing someone else engage in a behavior that was

prohibited to oneself), and other subjective reactions such as increased attractiveness toward the forbidden behavior (Brehm et al., 1966; Hammock & Brehm, 1966), denying the existence of the threat (Worchel et al., 1976), and source derogation (Brehm, 1966; Brehm & Brehm, 1981; Grandpre et al., 2003).

Measures and Moderators of Reactance

Recent theoretical advances in the study of PRT include the development of empirical measures to assess the reactance construct as well as the identification of several moderating variables, which have allowed researchers to better understand how persuasive messages are differentially processed based on both individual and situational factors (for recent reviews see Miron & Brehm, 2006; Quick et al., 2013; Rosenberg & Siegel, 2018; Steindl et al., 2015).

Measuring (State) Reactance

Reactance was originally believed to be immeasurable, as Brehm viewed reactance as “an intervening, hypothetical variable... We cannot measure reactance directly, but hypothesizing its existence allows us to predict a variety of behavioral effects” (Brehm & Brehm, 1981, p. 37). Brehm viewed reactance in terms of antecedents and outcomes such as hostility (Brehm, 1966), source derogation (Worchel & Brehm, 1971), and boomerang effects (Worchel & Brehm, 1970), essentially assigning psychological reactance to black box theory status (Quick et al., 2013).

Since the early days of theorizing about reactance, there have been several recent developments to move beyond the black box to more accurately identifying and assessing the construct. Dillard and Shen (2005) tested four distinct views on the factors that constitute reactance to examine which serves as the best representation of the variable. The first view is that reactance is a purely cognitive response to freedom threats resulting in negative cognitive evaluations as assessed by thought-listing technique (e.g., Petty & Cacioppo, 1986). The second

view holds that reactance is purely emotive as evidenced by increased hostility and aggressive feelings toward the freedom threatening party as assessed by reported experiences of such feelings (Dillard et al., 2002). The third view is essentially a dual process model in which both negative cognitions and negative affect uniquely contribute to one's response to the experience of reactance (e.g., Dillard & Peck, 2000; Stephenson, 2003). The fourth and final view suggests that reactance is not only a combination of cognition and affect, but their influence is intertwined and indistinct (Dillard & Shen, 2005).

To test which model fit the data best, Dillard and Shen (2005) conducted two studies in different contexts (alcohol use and flossing) with messages varying in strength and threat (high threat vs. low threat to freedom). After exposure to a persuasive message, participants were asked to respond to a series of measures to assess their experiences. Because perceived threat serves as an antecedent to reactance (no reactance without first a perceived threat being detected), an induction check assessing perceived threat to freedom was indicated by four Likert items: "The message threatened my freedom to choose/tried to make a decision for me/tried to manipulate me/tried to pressure me." The cognitive component of reactance was assessed via thought listing technique and the affect component was assessed via an anger scale which consisted of four items: "To what extent did the message you just read make you feel angry/irritated/annoyed/aggravated." The authors also measured attitudes toward message advocacy and behavioral intentions. Ultimately, the intertwined model best supported the data, thus providing evidence that reactance is a combination of cognition and affect.

Around the same time Dillard and Shen were testing their intertwined model, Lindsey (2005) developed her own measure of reactance. Lindsey's measure was a four-item scale originally based on Hong's trait reactance scale (Hong & Faedda, 1996) and was designed to

assess reactance in relation to questions about bone marrow donation (e.g., “I am uncomfortable that I am being told how to feel about bone marrow donation”). Quick (2012) pitted Dillard and Shen’s (2005) approach against Lindsey’s (2005) approach to determine which one was better at measuring reactance in terms of reliability and validity. Quick concluded that although both measures were reliable and valid, the Dillard and Shen approach was superior, as it was capable of distinguishing freedom threat from reactance whereas Lindsey’s measure was not. Other scholars have since provided further evidence supporting Dillard and Shen’s approach to measuring reactance, specifically that reactance should be measured as a combination of cognition and affect (e.g., Quick & Stephenson, 2007a; Rains & Turner, 2007).

Although, the intertwined model has received extensive empirical support, other measures and refinements have been advanced recently. Quick and Stephenson (2007b) developed what they called the Reactance Restoration Scale (RRS) to measure both direct and indirect restoration following a reactance experience. Steindl and colleagues (2015) developed the Salzburger State Reactance (SSR) measure, with a factor analysis supporting a three-factor structure including a) experience of reactance, b) aggressive behavioral intentions, and c) negative attitudes, and found support for its validity as it strongly correlated with other established reactance measures. Sittenthaler and colleagues (2015) utilized physiological measures to assess reactance and detected differences in heart rates following an illegitimate restriction compared to a legitimate restriction for not being able to rent a flat—although both restrictions led to increased heart rates, the illegitimate restriction led to an immediate increase, whereas the legitimate restriction led to a delayed increase. Miron and Brehm (2006) called for further research into the use of physiological measures in reactance studies, which could advance the study of reactance. To date, Dillard and Shen’s approach serves as the most prominent and

supported measure we have; however, as Miron and Brehm suggest, researchers should continue to strive for new ways to test the reactance construct.

Moderators of Reactance

Research has identified several important moderating variables of the reactance construct, some of which are individual factors whereas others are the product of situational factors.

Moderators include the extensively researched trait reactance, and lesser examined moderators including issue involvement and uncertainty.

Trait reactance. Although reactance was originally conceived of as state specific, with reactance believed to be momentary and immediate (Shoham et al., 2004), many researchers believe reactance is *best* understood as a dispositional trait (e.g., Buboltz et al., 1999; Thomas et al., 2001) or at the very least a moderating factor that influences how individuals respond to persuasive attempts (Dillard & Shen, 2005). Kelly and Nauta defined dispositional reactance as the “consistent tendency to perceive and react to situations as if one’s freedoms were being threatened” (1997; p. 1124). It is unlikely that individuals high in trait reactance (TR) remain in a constant state of reactance; however, such individuals do appear to be more prone to experiencing reactance when exposed to the right trigger (Brehm & Brehm, 1981; Dillard & Shen, 2005).

Much of the research on TR has been aimed at a) how various levels of the trait moderate how individuals receive persuasive messages in a variety of contexts, b) developing measures to assess the trait, and c) identifying correlates and periods in the lifespan at which TR is most pronounced.

TR and persuasive messages. Along with sensation seeking, Miller and Quick (2012) found TR to be predictive of risky behaviors such as alcohol, tobacco, and marijuana use.

However, only TR and not sensation seeking reliably predicted risky sexual behaviors among an emerging adult population. Miller and colleagues also identified TR to be a predictor of adolescent smoking initiation along with prior experimentation and having friends who smoked (Miller et al., 2006). Similarly, Wium and colleagues (2009) found smokers who were high in TR to be especially negative toward strong anti-smoking measures. Although the bulk of research on TR and responses to persuasive messages considers contexts that revolve around individual health (e.g., smoking, exercise), other non-individual health based contexts such as organ donation (Quick et al., 2011) and clean air quality (Quick et al., 2009) have rendered similar results.

Message designers should be keenly aware of the content and strategy they use in the construction of a persuasive message, especially if their message is aimed at audiences rife with individuals high in TR. In comparing messages that utilized an exchange communication style (i.e., commercial in nature, with product and monetary information explicitly stated) and messages that utilized a communal communication style (i.e., where the content is unrelated to financial gain or loss), Lee and colleagues found that individuals high in TR were more irritated than those low in TR when presented with an exchange message; however, there were no differences when presented with a communal message (Lee et al., 2015). Individuals high in TR also appear to view television programs with more scrutiny and often are more aware of manipulative advertisements and are thus less susceptible to persuasion attempts; further, individuals high in TR tend to process persuasive messages more systematically and thus tend to be more suspicious and derogative of a message's source than those low in TR (Russell et al., 2014). The combination of possessing a keen sense to sniff out persuasive attempts along with an

aversion toward being manipulated for those high in TR makes the task of reaching these individuals even more difficult for message designers.

Measures of TR. Several scales have been developed to assess TR. Among the more popular and widely used measures include the Hong Psychological Reactance Scale (HPRS; Hong & Page, 1989; Hong & Faedda, 1996) and the Therapeutic Reactance Scale (TRS; Dowd et al., 1991). The HPRS originally consisted of 14 items designed to assess reactance to compliance demands (e.g., “Regulations trigger a sense of resistance in me”), responses toward restricted choice (e.g., “I become angry when my freedom of choice is restricted”), resistance from influence attempts (e.g., “I resist the attempts of others to influence me”), and resistance from advice and recommendations (e.g., “I consider advice from others to be an intrusion”); however, the measure has since been reduced to 11 items (Hong & Faedda, 1996). The TRS is more commonly used with patients in more clinically based settings, and is separated by two subscales, the first measuring behavioral reactance (17 items, e.g., “I enjoy playing devil’s advocate whenever I can”), and the second measuring verbal reactance (11 items, e.g., “I feel it is better to stand up for what I believe in than to be silent”). Although measures of TR have their critics who question their validity (e.g., Sholam et al., 2004), others have used TR measures with success and reliability (e.g., Dillard & Shen, 2005; Miller et al., 2007; Miller & Quick, 2010). Further research could help determine the measures’ ability to predict responses to persuasive messages above and beyond message effects alone (Quick et al., 2013).

Correlates of TR. As mentioned, TR and sensation seeking, which has been defined as the seeking of intense, novel stimuli at the risk of financial, social, legal, or physical costs (Zuckerman, 1994), have been found to be strongly related (Miller & Quick, 2010). Like individuals high in TR, individuals high in sensation seeking are often targets for health risk

campaigns, as these individuals tend to be more prone to risky behaviors compared to those low in either trait. Highly reactant people tend to be autonomous and lacking in self-control (Dowd, Wallbrown et al., 1994) as well as more aggressive, less trusting, more vigilant, and suspicious of others compared to less reactant people (Buboltz et al., 1999). Family dynamics also appear to play a role in the level of TR that individuals develop, such that children of divorced parents often exhibit more TR than those from intact families (Buboltz et al., 2003).

Other factors that may contribute to TR include gender, race, and age. Research has rendered inconsistent results concerning gender, with some studies finding men to be more reactant than women (Seemann et al., 2004; Woller et al., 2007), whereas other studies have found no significant differences in relation to gender (Brehm & Brehm, 1981; Hong et al., 1994). With regard to race, Woller and colleagues found African Americans, Asians, and Hispanics exhibited higher reactance than Caucasians and Native Americans (Woller et al., 2007). They explained that the differences in race may have to do with a minority status that could lead to real or perceived restrictions of behavior stemming from racial discrimination. Research on age differences appears to be more consistent than that involving either gender or race. Most scholars agree that there are distinct times in the lifespan at which people are more prone to reactance. The trait may first emerge around the age of two, often referred to as the terrible twos (Brehm & Weinraub, 1977). Adolescence appears to be a time in development at which reactance spikes, perhaps due to an increased desire for autonomy (Grandpre et al., 2003). The majority of research suggests emerging adulthood (age 18-25) as a time when reactance is especially pronounced, as it constitutes a period of self-reflection, identity exploration, and independence (Arnett, 2004). Woller and colleagues (2007) compared adults at three different age ranges: young adults (18-24), middle aged adults (35-44), and older adults (55-64) and found the young

group to be the most reactant; however, the older group was more reactant than the middle aged group. They reasoned that middle aged adults are the least reactant group due to their decreased desire to assert their autonomy, perhaps due to their responsibilities and the demands of life (parenting, job, etc.), whereas older adults may perceive themselves as having less influence over their environments, thus driving them to reestablish their lost sense of control over their own lives.

Overall, research on TR offers valuable insight into how individual differences may contribute to how people respond to persuasive messages. Message designers should take heed of the findings based on such research and develop messages with due consideration and in such a way as to avoid any potential negative reactions toward their messages.

Issue involvement. Although issue involvement (i.e., the importance of a topic) has long been understood to be an important factor in determining the level of reactance generated, its role as a moderating variable in reactance research has been relatively unexplored empirically (Quick et al., 2011). A closely related concept is “vested interest,” which refers to the personal importance and hedonic relevance that an issue has in a person’s life (e.g., Crano & Prislin, 1995; Sivacek & Crano, 1982). Given that issue importance is a central variable within many persuasive communication theories, perhaps most prominently in the elaboration likelihood model (Petty & Cacioppo, 1986), Quick and colleagues (2011) set out to test its role in the context of a reactance study. In their study, participants were asked how personally relevant organ donation was to them (e.g., “organ donation is a personally relevant topic for me”) and then presented them with one of several persuasive messages consisting of different character frames (e.g., organ donor, organ recipient, or person on waiting list) and either high or low threatening language. They found that although issue involvement was not directly associated with

freedom threat, it was positively associated with organ donation and intent to be a donor and its interaction with trait reactance predicted a perceived freedom threat. Although the assumption that the personal relevance of a topic should affect one's reception of a persuasive message has been well established (e.g., Brehm, 1966; Brehm & Brehm, 1981), the study of PRT would likely benefit from the inclusion of and further empirical evidence of issue involvement as a moderating variable.

Uncertainty. Although people value their autonomy and freedom to make their own decisions and generally experience reactance when they perceive that a freedom is being threatened, there may be situational factors or emotional states that moderate their perceptions of controlling or direct forms of communication. One such factor is the level of certainty or security that people feel when presented with persuasive communications. Feelings of uncertainty are aversive and arouse insecurity and anxiety (Haas & Cunningham, 2014). According to uncertainty identity theory (UIT; Hogg, 2000) people are motivated to alleviate uncertainty about their attitudes, values, or themselves by reestablishing a sense of security (Hogg, 2007, 2012). In times of uncertainty, people may be more inclined to seek the structure, direction, and comfort provided by an in-group, and may be more accepting of proscriptive orders or commands from the group or an authoritative figure.

To test whether the level of certainty affected how people reacted to controlling communication, Rosenberg and Siegel (2021) conducted a series of studies in which they primed participants to feel certain or uncertain about themselves and then assessed their perceptions of a controlling agent or message. In one study, participants who were primed to feel threatening uncertainty were twice as likely as those primed to feel certain and secure about themselves to choose the controlling alternative (doctors prescribing one singular course of treatment) as

opposed to an autonomy-supportive option (doctor providing multiple courses of treatment). In a second study, participants primed to feel threatening uncertainty were less likely to perceive a controlling message as threatening and were more likely to report positive attitudes to a university policy change than were participants primed to feel certain. This line of research suggests that we cannot assume that people will always value their freedoms in the same way at all times. Frame of mind or emotional states such as the feeling of certainty versus uncertainty may affect how people respond to persuasive messages.

Reactance and Persuasive Messages

In Burgoon and colleagues' review of reactance (2002), they suggested to scholars, especially communication researchers and social psychologists interested in persuasion, to take a particular interest in PRT to help explain why persuasive messages might succeed or fail. At the time of their review, they argued that the bulk of research on reactance was focused on face-to-face, dyadic communication situations and that researchers who were more focused on the effects of mass mediated communications and new technologies hadn't yet paid enough attention to PRT. They further argued that "communication researchers in particular can contribute much to reactance research by moving away from questions such as "what is reactance?" and asking "what message factors facilitate or inhibit reactance?" (p. 221). These factors include the structure, features, and content of a persuasive appeal, which can impact the overall quality and reception of a message (Quick et al., 2013). This section will examine the research that has taken the mantle in searching for the structures of messages that facilitate or inhibit reactance, with a particular focus (although not limited to) on non-interpersonal communications, that is, communications aimed at larger groups (e.g., mass media campaigns; public service

announcements) rather than interpersonal, dyadic forms of communication (e.g., face to face; doctor-patient interactions).

Messages that Facilitate Reactance

There are several common message types and message features that if used inappropriately run the risk of arousing reactance. These common message types are either highly threatening to one's sense of freedom, exhibit obvious intent to persuade, or both. These messages include warning labels, guilt appeals, fear appeals, loss-framed appeals, deductive reasoned appeals, and appeals that use high-controlling language.

Warning labels. Persuasive communications need not be overt and can be presented in a variety of fashions. However subtle, attempts to restrict consumers from using a product such as the age-appropriate warning labels that are placed on the packaging of movies or video games can backfire by eliciting reactance. Bushman and Stack (1996) studied evaluations of violent television programming among college undergraduates and found that warning labels (for violent television program) increased interest (Study 1), especially when the source was authoritative (Study 2), and that warning labels increased interest more than a mere information label (Study 3). Further support for Bushman and Stack's findings was provided when Bushman (2006) found that warning labels for violent television programming led to increased attractiveness across all the age groups studied (9-11, 12-14, 15-17, 18-20, and 21+). These series of studies support the forbidden fruit theory in that people appear to be attracted to things they are told they cannot have.

Video game warning labels also have generated increased attraction among people ranging in age from 7 to 17 years of age (Bijvank et al., 2009). Jöckel and colleagues expanded the research by using eye tracking technology to evaluate interest in both movies and video

games and found that when age-restricted labels (e.g., +12) were presented, participants (12 and 13-year-old boys) more frequently and for longer durations looked at the forbidden items (Jöckel et al., 2013). Adolescence, being a time of increased desire for independence, is a particularly difficult group to reach as they are likely to react against appeals from authority figures, thus the inclusion of ostensive restricting warning labels can potentially do more harm than good.

Guilt appeals. Guilt is an unpleasant and distressful feeling that is based in social relationships. It often motivates the proposed transgressor to make amends for any wrong doing (Lindsey, 2005; O’Keefe, 2000). The use of guilt in a persuasive appeal often is designed to promote some form of pro-social behavior (Graton et al., 2016). Inducing guilt as a message strategy has rendered mixed results. However, a close examination of the literature provides a rationale for the circumstances in which guilt appeals will likely succeed or fail.

Guilt can certainly be an effective strategy under the right conditions. Because guilt is best induced when it is based on an interpersonal relationship, message designers must be careful when using guilt in impersonal and mass mediated forms of communication. For a guilt appeal to be effective, it should first activate a level of threat followed by appropriate levels of response- and self-efficacy. That is, those called to action must feel as if they have control over a situation and can act in a manner that will successfully ameliorate the threat of guilt (Lazarus, 1991; Lindsey, 2005). The use of guilt appeals has found success in messages such as those promoting bone marrow donation (Lindsey, 2005) and pro-environmental issues (e.g., waste management; Graton et al., 2016).

When guilt appeals are subtle, such that the origin of guilty feelings are not traced back to the source of the persuasive message or the message itself, the appeals are far likelier to succeed as opposed to when an appeal’s persuasive intent is blatantly obvious (Coulter & Pinto, 1995).

When messages are clearly trying to induce guilt, receivers may perceive the message as manipulative and thus a threat to their personal freedom (Cotte et al., 2005). In fact, guilt appeals can elicit annoyance, resentment, and anger (O'Keefe, 2000). Graton and colleagues (2016) found guilt indeed promoted prosocial behaviors when subtle reparation suggestions were provided; however, when such suggestions were overtly strong, the effects were reversed. In the context of advocating taking school seriously, Bessarabova and colleagues found that negative attitudes toward a message were mediated by the awareness of persuasive intent and that the more guilt that was induced, the more likely participants were to realize or become aware of the message's use of guilt to persuade, leading to reactance (Bessarabova et al., 2015).

Ultimately, guilt appeals could be used to great effect; however, message designers must be cognizant of the potential drawbacks of inducing guilt under certain conditions, especially when messages are communicated through non-interpersonal channels. Guilt appeals that are subtle tend to work better than those that are heavy-handed, as such communication attempts increase the risk of making manipulative intent salient, resulting in outcomes related to psychological reactance.

Fear appeals. Fear appeals typically have two components: threat and action (Rogers, 1983). The threat component is designed to inform a receiver of the presence of undesirable consequences and one's susceptibility to such consequences (e.g., the dangers of drinking to excess). The action component is designed to motivate the receiver to take a course of action to reduce or avoid the threat (e.g., limiting oneself to two drinks per week). According to the drive model (Janis, 1967), the experience of fear generates unpleasant emotions, motivating individuals to reduce the unpleasantness. When the unpleasantness of the fear is reduced, persuasion is often possible; however, when fear is not reduced, defensive processes take over.

Witte's (1992) extended parallel process model (EPPM) states that a healthy dose of fear is necessary to motivate change, but it only works when efficacy is high, that is, receivers must perceive that they are capable of acting in such a manner that will effectively reduce fear. When efficacy is high, the danger control process occurs and fear is reduced; however, when efficacy is low, fear control processes occur, which leads to maladaptive responses such as denial, source derogation, and reactance. Fear appeals are believed to generate reactance due to their use of high-controlling and intense language, which makes intent to persuade unambiguous (Shen & Coles, 2015). To generate the appropriate amount of fear, appeals must have a certain level of intensity to stimulate the receiver toward contemplation and action. Message designers that opt to use fear appeals are advised to consider the consequences of a flawed attempt at inducing fear. Topics that are highly vested, in which receivers are not likely to be easily persuaded to change (e.g., binge drinking among college students), may backfire if the message is poorly constructed.

Framing: loss vs. gain. Researchers have been interested in the persuasiveness of gain- and loss-framed messages since the early work on prospect theory (Kahneman & Tversky, 1979). Prospect theory contends that people will make decisions based on how a persuasive message is framed. For instance, when a message is framed in terms of potential gains, people will tend to be risk-averse; however, when a message is framed in terms of potential losses, people will generally embrace risk. Gain-framed messages highlight positive outcomes that may come as a result of adhering to a message's behavioral recommendations, whereas loss-framed messages stress the negative outcomes that could result if the message's behavioral recommendations are not adhered to.

Researchers interested specifically in psychological reactance have examined the persuasive effects of message framing and have found initial support for the notion that relative

to gain-framed messages, loss-framed messages tend to elicit reactance (Cho & Sands, 2011; Lee & Cameron, 2017; Reinhart et al., 2007; Shen, 2015). Although some studies have found mixed or inconclusive findings concerning the effect of framing on reactance (e.g., Quick & Bates, 2010), most published research on framing and reactance point to loss-framed messages as the reactance inducing culprit. Across three studies, Reinhart and colleagues (2007) found a framing effect such that a gain framed message (e.g., “your *presence* on the donor list has the potential to *save or improve* the lives of up to 50 individuals”) promoting organ and tissue donation were met with more favorable reactions than loss-framed messages (“your *absence* on the donor list *can leave* potentially up to 50 individuals on the transplant list indefinitely”), which induced more reactance. Cho and Sands (2011) found that a loss-framed message designed to promote sun safety produced greater perceived threat to freedom among adolescents than a gain-framed message; however, there was no direct evidence for the impact on reactance. Also, perceived threats were significantly related to anger but not to negative cognitions. Similarly, Shen (2015) found loss-framed messages increased perceived threat and that the advantage gain-framed messages held over loss-framed messages was more salient when the threat manipulation in the messages was high as opposed to low. In the context of weight management, Lee and Cameron (2017) found that a gain-framed message generated higher motivation to comply with behavioral recommendations than did a loss-framed message.

Researchers contend that loss-framed messages are likelier to arouse reactance than gain-framed messages, because loss-framed messages are inherently more forceful and controlling; further, gain framed messages are presented as offers to be accepted or rejected whereas loss framed messages are presented as commands that must be obeyed (Cho & Sands, 2011). Loss frames also tend to evoke stronger emotions, which ultimately may be perceived as more

manipulative than a gain frame (Witte, 1992). Finally, from a practical standpoint, Shen (2015) argues that it may be difficult to avoid using explicit and intense language in mass communicated, non-interpersonal persuasive messages, thus gain-frame messages may help mitigate reactance and facilitate persuasion. Researchers should be aware of the context and conditions present when deciding whether to use a gain vs. a loss frame approach. Although there may be times when a loss frame approach is superior to a gain frame approach, it appears that loss-framing is generally more susceptible to generating reactance.

Argument structure: deductive vs. inductive. Buller and colleagues (Buller et al., 1998; Buller et al., 2000) examined whether the influence of message features, specifically inductive versus deductive reasoning and language intensity, varied based on the stage of intent to act on the part of message receivers. Inductive logical appeals provide a list of facts about a topic without explicitly asserting any conclusions or recommendations, whereas deductive appeals present arguments with explicit conclusions or recommendations. In the context of persuasive messages promoting protection from the sun, Buller and colleagues (1998) differentiated between individuals who stated (before exposure to message) that they had no intention to adopt protective measures and individuals who stated that they had intended to adopt such measures (but had yet to do so) and found differences in the effectiveness of the communication style delivered to each; for non-intenders, non-intense inductive messages were better received, whereas intense deductive messages appeared to work better with those who intended, but had yet to act. The researchers reasoned that intenders likely already made the decision to act in accordance with the message and thus felt less threatened as they did not necessarily value the decision any longer and the deductive-intense approach was more of a reminder to go through with one's intention than an actual persuasive attempt. Non-intenders,

however, may have been put off by the aggressive nature of the deductive-intense approach, and appreciated the inductively based facts sans any sense of coercion. Argument structure, like many of the message strategies discussed thus far, depends on the relative position of the audience. When attempting to reach a new audience that has given little thought to changing a behavior, deductive reasoning potentially could be a foolhardy approach.

High-controlling language. Appeals that use language to exert pressure on receivers to adhere to the recommendations prescribed by the message can be characterized as controlling. Researchers have referred to this type of language by several labels including dogmatic (e.g., Bensley & Wu, 1991), intense (e.g., Buller et al., 1998), explicit (e.g., Grandpre et al., 2003), and high-controlling (e.g., Miller et al., 2007), with Quick and colleagues (2013) classifying them under the umbrella of domineering. Although there may many designations, what they all have in common is they can be characterized as highly threatening to receivers' sense of autonomy and their intent to persuade is unambiguous, essentially representing the formula for reactance. For simplicity, this review will hereafter refer to these language types as "high-controlling (HC)." HC language is direct and forceful and often uses imperatives such as "must" and "should" (McLaughlin et al., 1980). Dillard, Kinney, and Cruz (1996) stated that influence messages can be characterized on varying levels of explicitness and dominance. A message is explicit to the extent that it easily enables understanding as to the source's intention or request, and dominant to the extent to which the source of the message attempts to limit the receiver's behavioral options.

The use of HC language has been ineffective in several different contexts aimed at promoting prosocial behaviors including organ donation (e.g., Quick, et al., 2011 ["becoming an organ donor is something you *have to do*"]), flossing (e.g., Dillard & Shen, 2005 ["flossing: It's easy. *Do it because you have to!*"]), recycling (e.g., Bessarabova et al., 2013 ["the information

about the importance of and benefits of recycling you *must* know”], as well as littering (Reich & Robertson, 1979), sun safety (Buller et al 1998), anti-smoking (Grandpre et al., 2003), alcohol use (Bensley & Wu, 1991), strep throat (Rains & Turner, 2007), and exercise (Miller et al., 2007; Quick & Considine, 2008). Generally, HC language has been found to be ineffective in terms of persuasion due to its likelihood of triggering reactance.

Summary of Messages that Facilitate Reactance

The persuasive message types discussed thus far have several commonalities that help explain why they tend to facilitate reactance. Although well intentioned, these types of messages tend to be highly threatening to one’s sense of autonomy and are conveyed in a manner that makes persuasive intent clear and obvious. They lack subtlety and are likely to be direct rather than suggestive. These messages also tend to be proscriptive and restricting (e.g., warning labels), they are often perceived as manipulative (e.g., guilt appeals), and tend to elicit strong negative emotions such as anger or resentment when they fail (e.g., loss frame). The aim of these types of messages is to motivate action toward positive behaviors or spurn negative behaviors and whereas the intensity and tone of these messages will often draw sufficient attention, they often fail to make the intended impact.

Although these types of messages often are met with resistance, messages of this sort may prove their worth under the right conditions. It is important to note that mass communicated messages are not afforded the latitude of being misunderstood the way an interpersonal communication might be afforded, as one can easily clarify one’s position in an interpersonal setting. Thus the need to be clear and direct is essential for mass communicated messages, as they may only get one chance to get a point across. The potential utility of HC messages will be

discussed in due time, but first a survey of the types of messages that have been found to inhibit reactance and how they differ qualitatively from messages that facilitate reactance is in order.

Messages that Inhibit Reactance

Message designers have come to realize the negative consequences associated with reactance and have started to identify features to prevent them from occurring. These message strategies include the use of empathy, sensation value and novelty, and low controlling language.

Empathy. Message-induced empathy has found success as a reactance mitigating strategy (Shen, 2010, 2011). Shen (2010) proposed that message-induced empathy is comprised of three components that yield a single (empathy) factor: affective, cognitive, and associative. The affective component refers to the sharing of emotions between the receiver and the character in a message. The cognitive component refers to understanding and perspective taking features. The associative component refers to the mechanism through which a receiver experiences the events described in the message as if they were happening to oneself. When receivers feel empathic toward characters in a message, they identify with and are drawn to the characters via social bond. The state-empathic process is believed to deflect negative affective reactions (e.g., anger) to persuasive messages while also increasing the likelihood that a receiver will understand and adopt the viewpoint of the persuasive message, thus reducing the occurrence of reactance.

To test the effectiveness of empathy at reducing reactance, Shen (2010) employed various antismoking and drunk driving messages designed to either induce high empathy or low empathy. For instance, one of the high empathy PSAs focused on the brother (Matt) of the actor who played the Marlboro man. At one point in the PSA, Matt tells the audience “The tobacco industry used my brother in ads to create the image that smoking makes you independent. Don’t believe it. Lying there with all the tubes in you, how independent can you be?” (p. 414). Low

empathy inducing messages tended to be more informative and less relational to the character's plight. Results showed that state empathy had an indirect effect on persuasion by way of mitigating reactance. In a related study, Shen (2011) compared empathy-inducing to fear-arousing antismoking PSAs. Results indicated that fear had a negative indirect effect on persuasion by activating reactance, whereas empathy had a positive indirect effect on persuasion by inhibiting reactance. Although more evidence needs to be gathered to understand just why and under what circumstances empathy helps mitigate the occurrence of reactance, early indications provide support for its effectiveness.

Message sensation value and novelty. Given the myriad of persuasive messages, message designers are always looking for ways to cut through the clutter and capture the attention of their intended audience with a clever or novel approach. Increasing message sensation value (MSV) is one way to pique interest and increase the arousal of an audience, as messages of high sensation value tend to be dramatic, exiting, and novel (Morgan et al., 2003). Palmgreen and colleagues (1991) defined MSV as "the degree to which formal and content audio-visual features of a message elicit sensory, affective, and arousal responses" (p.219). Kang and colleagues (2006) argued that messages high in sensation value are capable of decreasing counterarguments as they distract receivers from persuasive intent by way of their dramatic, emotional, and novel aspects, resulting in an increase in persuasiveness.

Based on the dominant thought disruption hypothesis (Petty et al., 1976), Quick (2013) examined the effectiveness of perceived-MSV at reducing reactance within the context of anti-marijuana television ads, predicting that messages perceived to have high sensation value would distract receivers from any freedom threat, resulting in reduced reactance. The results of Quick's inquiry supported his hypothesis, specifically that message novelty was negatively associated

with freedom threat. However, the other two dimensions of MSV, dramatic impact and emotional arousal, were not associated with freedom threat, suggesting perceived threat is only reduced to the extent that messages are perceived as novel and unique. As such, novelty effectively served as a positive expectancy violation (Siegel & Burgoon, 2002) and successfully distracted the receivers from any controlling or manipulative intent of the message.

It is important to note that when specific instructions or suggestions are provided in a message, high MSV may work well with low controlling language but may backfire miserably when used in conjunction with HC language. Messages high in MSV are capable of garnering attention; however, that attention may quickly shift to the high controlling language aspect of the message. Across two contexts (anti-drunken-driving and anti-smoking), Xu (2015) examined the interplay of controlling language and MSV and found that high sensation messages coupled with low controlling language were well received, whereas high sensation messages coupled with HC language were reactance inducing. Essentially, MSV was not effective at reducing reactance or hiding the directness brought on by HC language, and perhaps should be used only in conjunction with low controlling language. More research is needed to ascertain the conditions under which sensation value and novelty mitigate reactance. As it stands, MSV and novelty offer positive utility in terms of drawing attention; however, the extent to which they inhibit reactance remains unclear.

Low controlling language. Low controlling (LC) language can be thought of as the contraposition to HC language. Where HC language tends to be explicit, direct, and forceful, LC language tends to be implicit, indirect, and polite (Grice, 1975). A major distinction between HC and LC is that HC language uses imperatives such as “must” and “should,” whereas LC language uses qualifiers such as “perhaps consider” and “maybe,” which are used to make suggestions in a

manner that is non-abrasive and cognizant of the freedom of the receiver to make one's own choices. Because LC language is a non-directive communication approach, threat and persuasive intent are unlikely to be detected and thus less likely to arouse reactance. LC language is generally used in reactance research as a comparison to more aggressive forms of communication (e.g., Dillard & Shen, 2005; Miller et al., 2007; Quick et al., 2011).

Summary of Messages that Inhibit Reactance

Just as messages that are likely to facilitate reactance, messages that inhibit reactance share certain commonalities. Whereas reactance facilitating messages tend to be direct, forceful, and elicit negative emotions and cognitions, reactance inhibiting messages tend to be indirect, non-forceful, and elicit positive emotions and cognitions. For instance, where guilt appeals may induce anger and resentment, empathy-inducing messages aim to distract receivers away from persuasive intent and thus deflect negative affect. Empathy, MSV, and LC messages all tend to avoid straightforward directives and in doing so are less likely to trigger defenses in message receivers.

As for LC language, a distinction from what has been referred to as “autonomy supportive language” should be highlighted. Past research often has used the terms LC and autonomy-supportive language interchangeably; however, it is perhaps best not to treat them synonymously. While LC language is typically a feature of an autonomy supportive message, the concept of autonomy-support extends beyond the confines of the features of LC language. An autonomy supportive message can be conceptualized as a communication attempt that *actively* emphasizes self-initiation and choice (Vansteenkiste et al., 2006), whereas LC language can be conceptualized as the *absence* of language that restricts choice. One can envision a message that is autonomy supportive, by way of featuring a strong boost of response- and self-efficacy and be

highly motivating, yet quite direct and explicit (e.g., “Smoking has a strong and definitive causal link to cancer and is highly likely to result in premature death. You are fully capable of quitting. The choice of whether or not smoke is completely up to you”). Further research could benefit from examining the differential effectiveness of autonomy supportive messages that use LC versus HC language.

Finally, it should be noted that there are costs and benefits associated with all the message types that have been covered thus far, whether they typically facilitate or inhibit reactance. The next section will explicate these costs and benefits, as well as introduce message strategies that have identified the utility of and argued for the expediency of HC language in mass communicated messages.

A Case for Directives?

Although it was stated that using HC language in a persuasive appeal is likely to induce reactance, whereas LC language is unlikely to do so, the simple dichotomy between HC and LC language does not paint the entire picture when it comes to overall message effectiveness. It is true that if the only mission of the message designer is to avoid inducing reactance, then certainly one could avoid using HC language altogether. However, when the ultimate goal is to effectively communicate an important message to a targeted audience and increase the chances that they attend to the message, one must decipher if and under which conditions HC language is preferable to LC language and vice versa.

Pros and Cons of LC and HC Language

It is important to realize that there are pros and cons to using either LC or HC language. As for LC language, a primary benefit of its use is that receivers are less likely to feel threatened and thus less likely to react unfavorably against a message and its source (e.g., Burgoon et al.,

2002; Burgoon et al., 1975). A LC approach may in fact prove effective for a message that is targeted at a particularly reactant population such as adolescents and teens (e.g., Crano et al., 2007; Miller & Quick, 2010; Xu, 2015). LC language, being non-directive by nature, may help conceal the persuasive intent of a given message. However, the use of qualifiers such as “perhaps” and “maybe” can obfuscate the main points of a persuasive message, leading receivers to perceive the appeals as vague, ambiguous, and imprecise; further, LC messages may leave room for alternative interpretations as to the source’s intent (Grice, 1975). A lack of clarity could prove to be a costly shortcoming when the topic of the message is an important health related behavior such as adherence to a diabetes maintenance routine. Given that many persuasion attempts occur in mediated contexts or between participants lacking a close relationship to the source of the message, the need for clarity and efficiency is often urgent (Shen, 2015). Finally, LC language, due to the absence of intense or attention-grabbing language, is less effective than HC language at increasing arousal in receivers, thus making LC language less likely to motivate action compared to HC language (Buller et al., 1998).

HC language, on the other hand, is direct and straightforward. It is unambiguous and easy to comprehend. HC language can stimulate behavior change (Buller et al., 2000), enhance persuasion (Burgoon et al., 1975), and promote information seeking behavior (Leshner et al., 2008), all of which can make for a more impactful message. In fact, research has shown that in some cases, direct and aggressive messages are preferable especially in clinical settings where they can help lead to increased patient compliance (e.g., Dowd et al., 1992; Tracey et al., 1989). Unfortunately, the risk of using HC language is impinging on receivers’ perceived autonomy and ability to make their own decisions (Burgoon et al., 2002). When autonomy is compromised, receivers may perceive their sense of freedom as threatened, which could result in reactance and

message rejection. If a message designer was to use a HC approach, one must consider strategies to increase the chances that reactance is mitigated.

Capitalizing on HC Language

Although the use of HC language is not without risk, researchers recently have undertaken the task of developing strategies designed to maximize the virtues of HC language (e.g., clarity) while simultaneously mitigating the negative aspects of its use (i.e., perceived threat) in a focused and systematic way. These strategies include postscripts, narratives, other-referencing, inoculation, and irony. A final strategy, leveraging reactance, does not attempt to mitigate the negative impact of controlling language, but actively seeks to evoke it also is discussed.

Restoration postscripts. A major concern of HC language is that receivers may perceive that their decision-making autonomy has been compromised. Miller and colleagues (2007) examined the effectiveness of short postscripts provided at the end of promotional exercise messages reminding receivers of their freedom to make their own choices (e.g., “Obviously, you can make your own decisions. The choice is yours.”) as a device to restore any lost sense of autonomy or self-determination felt by receivers. They found the postscripts to be successful at attenuating perceived threat as well as other indicators of reactance (e.g., anger).

Miller and colleagues’ (2007) findings were later supported by Bessarabova and colleagues (Bessarabova et al., 2013; Bessarabova et al., 2017) such that postscripts were again effective at alleviating reactance, increasing positive attitudes, and increasing behavioral intentions after exposure to pro-recycling messages. However, unlike the Miller and colleagues (2007) results, subsequent findings only held for high threat conditions. For low threat conditions, the inclusion of a postscript appeared to be counter-productive as they decreased

persuasion. The authors reasoned that the postscripts could have made the persuasive attempt more obvious than would have been the case sans postscript. Thus, across multiple studies, postscripts were able to mitigate reactance in HC messages, yet their use in conjunction with LC language remains questionable.

Restoration postscripts may offer a valid strategy for alleviating reactance once activated, however, some have questioned the need ever to invoke reactance in the first place (Richards & Banas, 2015). In any case, postscripts have found success, yet if message designers elect to use them, they may want to proceed with caution.

Narratives. The use of narratives to deliver important prosocial messages is another technique that has resulted in positive outcomes in the quest to reduce resistance to persuasion (see Quick et al., 2013). Moyer-Guse (2008) argued that the narrative structure of entertainment-education storylines engages viewers and allows them to become involved with the characters in the story through the process of transportation. Transportation has been defined as “a convergent process, where all mental systems and capacities become focused on events occurring in the narrative” (Green & Brock, 2000, p. 701). Involvement with the characters, perceived similarity with the characters, and liking of the characters are other processes that enhance the effectiveness of a narrative (Moyer-Guse, 2008). Essentially, entertainment-education, specifically the narrative structure of the underlying message, is a subtler form of persuasion compared to other overt types of persuasive messages, thus the narrative structure works to obfuscate persuasive intent and may in turn mitigate the likelihood of reactance from occurring.

Testing the effectiveness of narratives, Moyer-Guse and Nabi (2010) compared reactions to a dramatic narrative versus a non-narrative program. The narrative program conveyed the difficulties of teen pregnancy embedded in an episode of a popular U.S. teen drama. The non-

narrative was in the form of a news program stressing the difficulties of teen pregnancy. As predicted, the dramatic narrative reduced reactance via identification with the characters and decreased perceptions of persuasive intent. In the context of organ donation, Reinhart and Anker (2012) found that being immersed in a PSA was positively associated with support for a message and negatively associated with threats to choice when deciding whether or not to become an organ donor. Quick and colleagues found support for the superiority of gain framed narratives to promote organ donation compared to loss framed narratives, as loss framed narratives were significantly associated with guilt, which in turn was related to greater threat to freedom and reactance (Quick et al., 2015).

Perhaps the greatest benefit to using narratives is that they make persuasive appeals less obvious. However, given the lack of a direct line of communication to the receiver in narratives, there is the chance that the underlying message is overlooked or misinterpreted. Researchers have begun to identify potential strategies to bolster the effects of narratives to ensure that messages are not misunderstood. Moyer-Guse and colleagues investigated the use of explicit persuasive appeals (epilogues) following a dramatic television program stressing the dangers of drinking and driving (Moyer-Guse et al., 2012). On the one hand, epilogues could undermine the subtle approach of the narrative and thus highlight the presence of the persuasive intent, on the other hand the inclusion of the epilogue could also help overcome any limitation of the narrative by clarifying the underlying message. Ultimately, the epilogues did not increase perceptions of persuasive intent nor reactance, and helped bolster the effectiveness of the narrative. Similarly, Gardner and Leshner (2016) investigated the positive impact that forceful directives can have on health based messages, as they are clearer and easier to understand than non-directive messages, and found support for the idea that forceful directives can be combined with narratives to work

on two levels—the directive language makes the message clear, while the narrative works to mitigate any negative outcomes stemming from reactance, as the line of communication is not directly from source to receiver, rather the communication is mediated through a story. To date, research supports the notion that narratives can be a useful tool for communicating persuasive messages without eliciting reactance.

Other-referencing and overheard communication. Rather than directly addressing shortcomings or transgressions on the part of the intended target with a persuasive appeal (e.g., failure to exercise), another approach could be to emphasize how one’s action can impact close others. For instance, rather than focusing on how neglecting one’s own health could have negative consequences for oneself, the focus is on how neglecting one’s health could impact a family member (e.g., “when your kids, grandchildren or friends watch your food choices, what lesson are they learning”; Gardner & Leshner, 2016). Other-referencing has been effective in contexts including high school students taking school seriously by reducing guilt (Bessarabova et al., 2016) and diabetes self-care by reducing reactance (Gardner & Leshner, 2016). The idea is that other-referencing makes the persuasive appeal less obvious by shifting the focus away from oneself and onto close others.

A slightly different approach is to utilize a modified take on the classic overheard communication research conducted by Walster and Festinger (1962). Crano and colleagues (2007) used such an approach to appeal to the target of a persuasive message (anti-inhalant use to middle school students) by ostensibly addressing parents rather than the students directly (e.g., “parents, do you have a young teen at home?”), which resulted in more favorable message evaluations. When the target of the message perceives that the focus of the appeal is shifted to others, persuasive intent is less obvious and the likelihood of perceived threat is in turn, reduced.

Inoculation. Recent research has begun to explore the use of inoculation as a strategy to prevent the occurrence of reactance (Richards & Banas, 2015; Richards et al., 2017). Richards and Banas (2015) attempted to turn the inoculation paradigm on its head so to speak, as researchers typically employ inoculation to *decrease* the effect of any subsequent persuasive appeal (McGuire & Papageorgis, 1961), whereas Richards and Banas attempted to use inoculation to *increase* the persuasiveness of a subsequent appeal. Inoculation messages were created to forewarn the audience of their potential experience of reactance with the goal of reducing the likelihood that they would generate cognitions that would otherwise lead to negative outcomes. The two requisites for successful inoculation are to first forewarn the audience about the threat of their own self-generated reactance rather than the threat from the subsequent message itself, and second, audience members must receive refutational preemption suggesting they have no reason to succumb to any feelings related to reactance. Richards and Banas' notion about the positive effects of inoculation proved successful as participants exposed to an inoculation message were less likely to experience reactance after reading a message aimed at reducing excessive alcohol use compared to participants who received a non-inoculating control. They concluded that inoculation could possibly be superior to freedom-restoring strategies (e.g., postscripts) as the latter strategy requires a freedom to be threatened for it to be restored, whereas inoculation could prevent the occurrence of reactance altogether.

Unfortunately, later findings by Richards and colleagues (2017) tempered the findings from the 2015 study. In one study, they found that an elaborated inoculation message increased reactant responses to a subsequent excessive alcohol use message compared to a control group. In a second related study, they found that a limited inoculation strategy (less detailed) reduced reactant responses to a subsequent message aimed at reducing soft-drink consumption compared

to a control, however, only when the message used LC language; when the message used HC language, the limited inoculation not only failed to reduce reactance, but slightly increased it. Although the limited inoculation was successful when paired with a LC message, one might question the point of using any inoculation at all in such a case, as LC messages aren't likely to induce reactance in the first place. As research on inoculation used in this context is new, further research needs to be conducted before it can be considered an effective strategy.

Irony. Scholars have identified several benefits for using irony in place of literal speech such as allowing speakers to convey a message through indirect means (Brown & Levinson, 1987), and engaging the intellect rather than mere emotions when confronted with counter-attitudinal or controversial topics (Gibbs & Izett, 2005). Irony also tends to be more humorous than plain speech (Colston & O'Brien, 2000) and often enhances appreciation for a message (Kim & Kim, 2018). Ironic utterances are more likely than literal utterances to generate external attributions, such that the receiver's focus is emersed in the situation rather than on the source of a message that may potentially elicit reactance (Burgers et al., 2016).

Given the benefits associated with irony, Staunton and colleagues (Staunton et al., 2020) examined the interplay of irony with HC language and found that an ironic-HC message was effective at reducing anger and threat while remaining explicit. Further, irony was more appreciated and rated as funnier than literal translations. The messages were constructed in such a way that a brief introductory paragraph was ironic followed by a transition to a literal message. According to the EQUIP model, the first step in the persuasive process is to engage an audience by capturing and maintaining their attention (Crano et al., 2019). Irony initially engages an audience by violating their expectations, as they are likely anticipating a literal version of a persuasive message. Irony may potentially be another strategy for message designers interested

in novel approaches to engaging their audiences with explicit messages, while avoiding negative reactions directed at the source of a message.

Leveraging Reactance. A final strategy that uses HC language, yet makes no attempt to mitigate reactance is based on the idea that the power of reactance potentially can be utilized to one's advantage. Since the inception of PRT, reactance, with good reason, has been consistently cast in a negative light as something to be avoided. Communication and social influence researchers have been preoccupied with discovering factors that induce reactance and developing strategies to negate its occurrence. However, reactance may yield significant power for message designers if leveraged correctly. In fact, tobacco companies, whether cognizant or not, appear to have figured out how to weaponize people's own reactance against themselves. For instance, Phillip Morris' "Think. Don't Smoke" campaign, which was on the surface aimed at abating tobacco use among teens, has resulted instead in favorable attitudes toward the tobacco industry and promoted greater intentions of smoking uptake (Farrelly et al., 2002). By using ostensibly controlling directives in their "anti-tobacco" campaigns (paradoxically against themselves), and omitting any mention of actual reasons to avoid smoking (e.g., causes cancer), tobacco companies such as Phillip Morris and Lorillard (e.g., "tobacco is whacko, if you're a teen" campaign) have fooled adolescents into embracing the idea of tobacco use.

To assess how adolescents respond to anti-smoking prevention ads, Henrickson and colleagues designed a randomly controlled experiment in which participants were exposed to either smoking prevention ads sponsored by the tobacco industry, smoking prevention ads sponsored by a non-profit organization (the American Legacy Foundation), or ads about preventing drunk driving (control) and asked to report on their perceptions of ad effectiveness, intentions to smoke, and attitudes toward tobacco companies. They found that the tobacco

company sponsored ads were rated as less effective at curbing smoking than the other ads (which ironically is what the tobacco funded ads would want) and engendered more sympathy toward tobacco companies (e.g., “cigarette companies get too much blame for young people smoking”; Henrickson et al., 2006). The tobacco companies were successful on two fronts: They produced ads that elicited reactance against “anti-smoking” sentiment due to their restrictive and authoritative (i.e., threatening) content, while simultaneously engendered sympathy from the audience; as reactance (e.g., unfavorable attitudes toward anti-smoking ads) also manifested in positive attribution of those who hold “pro-smoking” attitudes. In other words, by purposefully getting the audience to reject the command to avoid smoking, smoking became more appealing, and in turn attitudes toward tobacco companies (i.e., those who provide the product) became more favorable.

Given the success of tobacco companies at utilizing reactance to their advantage, there have been anti-tobacco campaigns that have successfully used reactance for good use, including the “truth” campaign whose strategy was to expose the manipulative intent and deceptive nature of the tobacco industry, rather than informing adolescents of the reasons they shouldn’t smoke (Bauer et al., 2000). Essentially the “truth” campaign played on the notion that adolescents are unlikely to passively accept being manipulated, thus exposing the tobacco industry’s true motives was a novel and effective way to market anti-tobacco ads. In a similar vein, Quick and colleagues posited that arousing anger (an element of reactance) by emphasizing how secondhand smoke presents a violation to the right to breathable air, people could be motivated to support clean air initiatives (Quick et al., 2009).

Media literacy interventions that highlight the strategies used by advertising agents to attract consumers could prove effective in a variety of both health and non-health related

contexts (Friedstad & Wright, 1994). One such intervention structured an anti-alcohol program aimed at developing strategies for coping techniques used in alcohol advertisements that make drinking look cool and more pervasive than it is; the intervention was designed to encourage reactance among students by teaching them the tricks that advertisers use to restrict their freedom to choose whether or not to drink (Goldberg et al., 2006). Students in the intervention program reported greater understanding of the persuasive techniques used by the advertisers, developed more critical attitudes toward the ads and the companies funding them, and reported greater intentions to avoid drinking than students in a control condition.

Reactance also may contribute as an additive resistance booster when used in conjunction with forewarning messages. Extensive research has demonstrated that when people are forewarned of their exposure to a counter-attitudinal persuasive communication, they are likely to boost their cognitive defenses to combat the impending information (Wood & Quinn, 2003). However, adding a little edge to forewarning messages by bolstering them with more freedom threatening language could enhance their effect. Miller and colleagues exposed participants to counter-attitudinal messages based on their positions on one of four topics (legalization of marijuana, government restriction of violent television programming, government ban of fire arms, or legalization of gambling) and found that compared to a classic inoculation condition and a control condition, a forewarning message bolstered by reactance including phrases that emphasized the impending message's attempt to restrict freedom (e.g., "the message *may threaten your very freedom to hold...*") enhanced key resistance outcomes such as negative cognitions, negative affect, and source derogation (Miller et al., 2013). Ultimately, social influence researchers interested in promoting pro-social and healthy behaviors could benefit

immensely from leveraging reactance in their favor by highlighting the manipulative intent of less scrupulous and manipulative agencies (e.g., the tobacco industry).

Summary of Strategies Using HC Language

With the exception of leveraging reactance, each strategy discussed in this section has on some level attempted to benefit from the use of HC language while simultaneously avoiding reactance. There is some evidence that these strategies can be effective, yet these strategies are not without their own respective shortcomings. One could argue against the practicality of or need for restoration postscripts, given that one must first elicit reactance before it can be mollified. Narratives, other-referencing, and irony show promise as a strategy to negate reactance; however, they are by nature indirect forms of communication, and although HC language can be used in a narrative, ultimately the communication is not streamlined to the receiver, which could result in miscommunication. The use of epilogues was found to alleviate such concerns (Moyer-Guse et al., 2012); however, one could question whether the use of epilogues neutralizes some of the persuasive impact the narrative could have. Inoculation appears to be in its infancy phase as a reactance reducing strategy and much is yet to be discovered about such an approach.

At this stage, researchers have begun to recognize the positive function that HC language has to offer and have started to develop strategies to utilize its strengths while placating its deficiencies, which ultimately points to a move in the right direction.

Attitude Certainty and the Metacognitive Perspective

Extensive research has elucidated our understanding of the antecedent factors responsible for instances of reactance (e.g., threat). Dillard and Shen's (2005) intertwined model revealed that the experience of reactance is a combination of affective and cognitive responses to a threat

and outcome measures such as attitudes toward the topic of a message and behavioral intentions are standard dependent variables of interest in most PRT paradigms. While those who receive threatening messages tend to report less favorable attitudes and evaluations of a topic or message compared to those who receive non-threatening, non-reactance inducing messages, less is known regarding how reactance affects attitude certainty.

Attitude certainty is a dimension of attitude strength, which refers to the extent that one is convinced that an attitude is correct (Abelson, 1988). Attitudes held with certainty tend to be more predictive of future behavior and more resistant to persuasive attacks, relative to attitudes held with less certainty (Petty & Krosnick, 1995). According to Tormala and colleagues, through the process of metacognition, people can become more or less certain of their attitudes depending on how they evaluate or appraise their performance when defending their attitudes against persuasive attempts (Tormala & Petty, 2002). Metacognition refers to people's awareness or thoughts about their own thoughts, thus when people perceive their thoughts to be productive in defending against a persuasive attack, people are typically satisfied and their certainty will likely increase; however, if people perceive they have done a poor job resisting, they may come to doubt their attitude and their certainty may decrease (Tormala & Petty, 2004).

Some of the earliest studies on the metacognitive and resistance appraisals approach conducted by Tormala and Petty (2002) demonstrated that when presented with a counter-attitudinal message (i.e., the adoption of comprehensive exams) participants in all conditions successfully resisted persuasion as evidenced by their reported attitudes. However, attitude certainty only increased if the message was believed to be strong. For those exposed to a weak message, certainty was no different than a control condition in which no message was presented and only attitudes toward the topic and certainty toward those attitudes were collected. Certainty

also was found to impact the relationship between attitudes and behavioral intentions as well as subsequent persuasive attempts.

Subsequent studies by Tormala and colleagues found that not only can people become more certain of their attitudes, so too can they become less certain (Tormala et al., 2006). People may become more certain when they believe they have resisted a strong (vs weak) message (Tormala & Petty, 2002) or when they have resisted a message from a highly credible source (vs a noncredible source; Tormala & Petty, 2004). On the contrary, people can become less certain of their attitudes when they perceive they have done a poor job generating a proper defense (e.g., generating weak arguments against the message). Tormala and colleagues (2006) manipulated participants' perceptions of their counterarguments by either giving them too little time to reasonably formulate counters or by providing them with false feedback on the quality of their counters. For those given too little time or led to believe their counters were weak, attitude certainty decreased. These findings are supported by a study conducted by Zuwerink-Jacks and Cameron (2003) that surveyed people's perceptions of resistance strategies. According to those surveyed, people rated strategies such as counterarguing and attitude bolstering as valid and the most likely to be used when faced with a persuasive attack. Strategies such as source derogation were rated as invalid and the least likely to be used when faced with a persuasive attack. One caveat to counterarguing being a valid strategy to defend oneself is that if one is unable to properly counterargue, poor counterarguments may lead to failed resistance.

Another study conducted by Tormala and colleagues (2007) demonstrated how attitude certainty can be shaken by manipulating the perception of people's resistance strategies. Participants were led to believe that the source of a persuasive message was from a minority or majority source. For those who initially resisted a message presented by a numerical minority,

attitude certainty decreased when they perceived that they based their attitude on the source's status and they believed that was an illegitimate reason for resisting a message. People generally report that valid resistance and rejection of a persuasive attack should stem from addressing the content of the message. Once the content is processed then strategies such as counterarguing should commence. Less diagnostic strategies such as source derogation (e.g., status basing) are likely to negatively impact certainty.

The Current Studies

The two primary objectives of the current dissertation are to a) attempt to clearly define the anatomy of a HC message and understand which factors are most likely to facilitate or inhibit persuasion and b) assess how the experience of reactance impacts attitude certainty and whether certainty is affected by metacognitive processes. With respect to the first objective, extensive research has shown that HC messages often fail because they arouse reactance. However, scholars argue that there are aspects of HC messages (e.g., clarity and unambiguity) that may facilitate positive outcomes (e.g., enhanced persuasion and appreciation) and perhaps, when it comes to the use of explicit and direct language, we need not throw the baby out with the bathwater. With that in mind, scholars have begun to develop strategies to construct messages that benefit from the positive aspects of HC language, while avoiding the negative aspects associated with its use (i.e., reactance). Ultimately, the dilemma between choosing to use or avoid HC language is perhaps due to a tendency to conflate the factors that comprise an influence message.

According to Dillard and colleagues (1996), an influence message can be characterized along the dimensions of explicitness and dominance. Explicitness refers to the extent that the message makes clear exactly what the source wants the receiver to do, whereas dominance refers

to the degree to which the source wishes to control the behavior of the target (Dillard et al., 1996). Although Dillard and colleagues originally hypothesized that both explicitness and dominance would be judged negatively, their findings suggest that while dominance is in fact undesirable from the viewpoint of the receiver, explicitness may be welcomed. They concluded that perhaps explicit messages signal affiliation and strengthen relational bonds. However, their study involved an interpersonal context, not a mass communicated message where the forming and strengthening of personal bonds is unlikely. Thus, the present research will seek to explicate the roles of these two dimensions in a non-interpersonal context (i.e., mass communicated).

With respect to the second objective, much has been discovered regarding how felt reactance affects evaluations of messages and attitudes toward the topic of a message. However, less is known about the extent to which attitudes are affected by reactance. Perhaps a gap exists between reported attitudes and the certainty with which one holds that very attitude, as a result of reactance. When an individual is presented with a reactance arousing message, it is reasonable to infer that one may become more or less certain of one's attitude toward the topic of the message. These inquiries were examined across three studies.

CHAPTER 3: Study 1

Study 1 serves two main objectives. The first focuses on the construction of freedom threatening vs. freedom non-threatening messages by investigating the role of the choice (i.e., autonomy-supportive) aspect of a message. Past research often has operationalized freedom threatening (i.e., HC) messages as both explicit and choice-restricting. Dillard and colleagues (1996) argued that influence messages can vary in terms of explicitness and dominance. Dominance in this case is conceptually antonymous with autonomy-support, with the former being choice-restricting and the latter being choice-enhancing. As mentioned, explicit messages need not be choice-restricting, nor do implicit messages need be choice-enhancing. In other words, not all explicit messages must necessarily restrict choice. If true, explicit language may not generate any more or less reactance than implicit language, and thus the main driving force responsible for generating reactance is whether or not choice is restricted, and not the difference in explicit versus implicit language. The hypothesis generated from this inquiry is stated as follows:

H1: Participants presented with choice-restricting messages will report greater anger, greater perceived threat, more negative attitudes toward the topic of the message, and lower intentions to engage in the behavior advocated by the message compared to those presented with choice-enhancing messages.

The second objective focuses on how reactance or resistance to a persuasive message affects attitude certainty. Messages that evoke visceral negative reactions that motivate people to restore their threatened sense of autonomy could embolden receivers to express more certainty in their attitudes; it's also possible that the threat of the message could test their resolve and lessen their certainty. The following research question is presented as follows:

RQ: Does the arousal of reactance lead to greater or lesser certainty in expressed attitudes toward the topic of a message?

Method

Design and Participants. Study 1 employed a 2 (directness: explicit, implicit) x 2 (choice: restricting, enhancing) + 1 control between-subjects design. The control condition was only included in the analysis of the certainty variable. A power analysis indicated that for the desired $\alpha = .05$, power = .80, medium effect size with five conditions and two covariates, G*Power recommended a total sample size of 269. It was expected that a number of participants would be removed from analyses for failing to meet desired criteria (e.g., failed attention checks), thus an additional 25% of the recommended sample size was recruited. In total, 334 workers recruited through Amazon's Mechanical Turk (MTurk), a crowdsourcing website on which people can sign up to complete tasks (Paolacci & Chandler, 2014; Rouse, 2015) were paid 70 cents to participate in a 7-minute ad evaluation survey. Participants who were not residents of the United States, failed one of two attention checks, or those identified as multivariate outliers were excluded from the final analyses. Upon consent, participants were randomly assigned to one of five text-based messages; they then completed dependent measures, as well as demographic information. The sample included 177 participants who identified as Male, 155 as Female, and two preferred not to state. The mean age was 41.25 years ($SD = 13.65$).

Experimental Messages. The four messages that made up the factorial were presented in a sequential manner across two pages (screens). The first page contained the manipulations, in which the first paragraph presented either explicit or implicit language. Merriam-Webster's dictionary defines "explicit" as "fully revealed or expressed without vagueness, implication, or ambiguity; leaving no question as to meaning or intent" (merriam-webster.com, n.d.). Thus, the

explicit messages for this study featured language and phrases that a) stressed the importance of the topic, b) stressed the urgency with which action was required, and c) stated that there was a singular best course of action. Implicit messages were more vague with regard to phrasing. The directness manipulation, however, was constructed in such a way as to avoid being a command, in that it made no mention to the reader that they *must* act in one way or another. The second paragraph of the first page contained the choice manipulation. At this point, the language was either commanding (no-choice) or suggestive and supportive (choice). A second page contained a message that presented facts and statistics about plant based diets and was designed to avoid being persuasive (see Appendix A for manipulations and main message).

Measures. To assess the effectiveness of the messages, several dependent measures were tested. Except where noted, all measures were on 7-point Likert scales. Using participants' average scores, composite scores were created for each multi-item scale, with higher values indicating greater levels of the construct measured.

Anger. Anger was assessed using the following four items: "The message angered me;" "The message irritated me;" "The message annoyed me;" "The message aggravated me" (Dillard & Shen, 2005) and were measured on a *strongly disagree/strongly agree* continuum. Dillard & Shen ($\alpha = .92$ to $.94$) as well as subsequent studies (e.g., Miller et al., 2007: $\alpha = .83$) found the measure to be valid and reliable.

Perceived threat to freedom. Perceived threat to freedom was used to assess perceptions of how threatening the message was to one's sense of freedom to make an autonomous decision. The four items were as follows: "The message threatened my freedom to choose;" "The message tried to make a decision for me;" "The message tried to manipulate me;" and "The message tried to pressure me," and were measured on a *strongly disagree/strongly agree* continuum. The

measure has been used extensively in PRT literature and has demonstrated reliability (Dillard & Shen: $\alpha = .83$ to $.87$) and validity in a number of contexts.

Attitudes toward the topic. Attitudes toward plant-based diets were assessed by four semantic differential items asking how the participant felt the topic was negative/positive, unwise/wise, detrimental/beneficial, bad/good. The scale was modified from Dillard and Shen (2005) and Miller and colleagues (2007), with both studies finding adequate reliability ($\alpha = .84$ and $.89$, $\alpha = .87$, respectively).

Intentions. Intentions were assessed by the following four items: “I intend to seek additional information about the benefits of plant based diets;” “I intend to discuss plant based diets with people close to me;” “I intend to try reducing my consumption of animal products;” “I intend to try more of a plant based diet.” This scale was designed for the purposes of this specific set of studies. Intention is typically assessed via single item scales in reactance studies. However, to achieve an adequate level of reliability, additional items were used.

Certainty. Attitude certainty was assessed using four items adapted from past research (e.g., Krosnick et al., 1993; Tormala et al., 2007). Items were as follows: “How certain are you of your opinion about plant based diets?;” “How sure are you that your opinion about plant based diets is correct;” “How certain are you that the attitude you expressed is the best attitude to have;” “Overall, how much confidence do you have in your opinion about plant based diets.”

Results

Prior to running statistical analyses, data were assessed for outliers, violations of normality, and homogeneity of variance. Minor violations to the assumptions of analyses of covariance (ANCOVA) were detected; however, ANCOVA is a robust statistical test and given the sample size of the study, the potential negative impact of the violations are mitigated. The

internal consistency reliabilities for the DVs are as follows: Anger ($\alpha = .97$), perceived threat ($\alpha = .90$), attitudes ($\alpha = .96$), intentions ($\alpha = .92$), and certainty ($\alpha = .93$).

Analysis of Variance. A series of two-way ANCOVAs were used to examine the effects of the directness and choice manipulations (see Table 1 for bivariate correlations and Table 2 for means and SDs for the DVs of interest related to reactance).

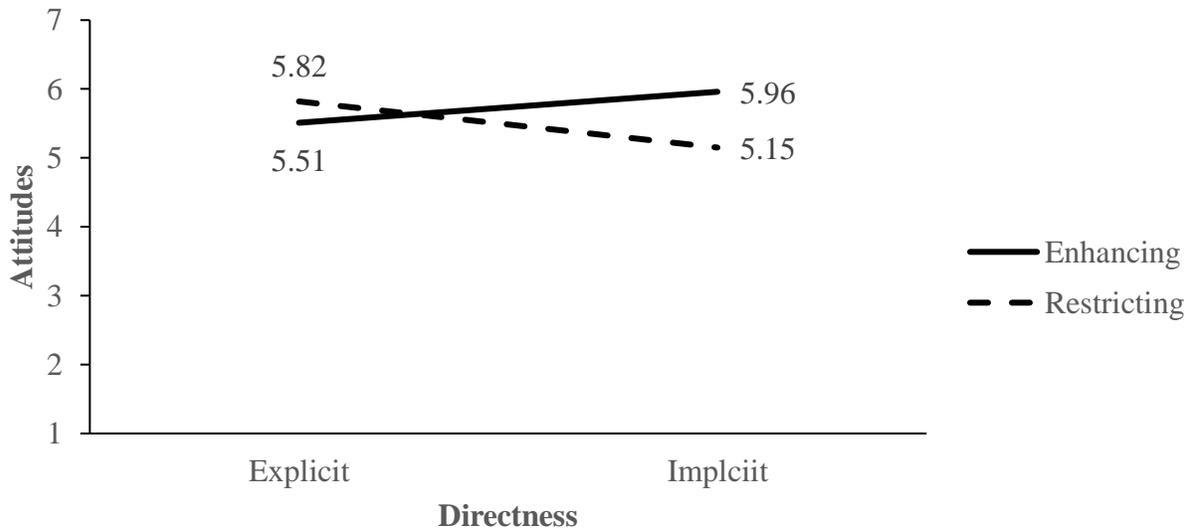
Anger. For anger, a main effect was detected for choice: choice restricting language ($M = 1.97$, $SD = 1.67$) generated more anger than choice enhancing language ($M = 1.54$, $SD = 1.14$), ($F[1, 259] = 6.24$, $p = .013$, partial $\eta^2 = .024$). No main effect was detected for directness, nor was there a significant interaction. Neither age nor gender-identity were a significant covariate.

Threat. For perceived threat to freedom, a main effect was detected for choice: participants perceived choice restricting language ($M = 3.34$, $SD = 1.83$) as more threatening than choice enhancing language ($M = 2.23$, $SD = 1.29$), ($F[1, 259] = 31.51$, $p < .001$, partial $\eta^2 = .108$). No main effect was detected for directness, nor was there a significant interaction. Neither age nor gender-identity was a significant covariate.

Attitudes. For attitudes toward a plant based diet, a significant interaction was detected between directness and choice ($F[1, 259] = 10.44$, $p = .001$, partial $\eta^2 = .039$). Neither age nor gender-identity was a significant covariate. An analysis of simple main effects revealed that for those receiving an implicit message, there was a statistically significant difference in attitudes between those presented with choice enhancing ($M = 5.96$, $SD = 1.14$) and choice restricting ($M = 5.15$, $SD = 1.74$) language ($F[1, 259] = 11.04$, $p = .001$, partial $\eta^2 = .04$). For those receiving an explicit message, there was not a statistically significant difference for choice enhancing ($M = 5.51$, $SD = 1.54$) and choice restricting ($M = 5.82$, $SD = 1.24$) language ($F[1, 259] = 1.59$, $p = .208$, partial $\eta^2 = .006$). See Figure 1 below.

Figure 1.

Study 1 Interaction Effect Attitudes.



Intentions. For intentions, a significant interaction was detected between directness and choice ($F[1, 259] = 8.40, p = .004, \text{partial } \eta^2 = .031$). Gender-identity was not a significant covariate, age was significant covariate ($F[1, 259] = 4.31, p = .039, \text{partial } \eta^2 = .016$). An analysis of simple main effects revealed that for those receiving an implicit message, there was a statistically significant difference in intentions between those presented with choice enhancing ($M_{adj} = 4.90, SE = .21$) and choice restricting language ($M_{adj} = 3.78, SE = .21$), ($F[1, 259] = 14.68, p < .001, \text{partial } \eta^2 = .054$). For those receiving an explicit message, there was not a statistically significant difference for choice enhancing ($M_{adj} = 4.25, SE = .21$) and choice restricting ($M_{adj} = 4.36, SE = .21$) language ($F[1, 259] = 0.85, p = .770, \text{partial } \eta^2 < .001$). See figure 2 below.

Figure 2.

Study 1 Interaction Effect Intentions.

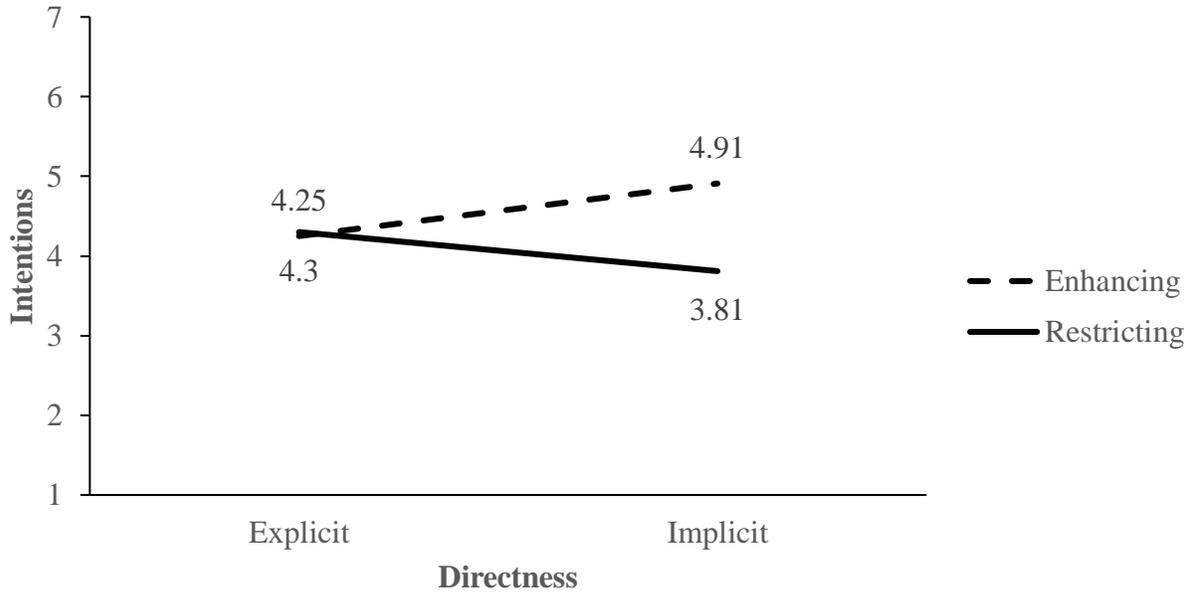


Table 1

Study 1 – Correlations for Reactance Variables (n = 268)

Measure	1	2	3	4
1. Anger	1			
2. Threat	.73**	1		
3. Attitudes	-.42**	-.39**	1	
4. Intentions	-.19**	-.29**	.63**	1

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Table 2

Study 1 – Means and SDs for Reactance Variables

Measure	Message Condition			
	Explicit Enhancing (n = 63)	Explicit Restricting (n = 68)	Implicit Enhancing (n = 66)	Implicit Restricting (n = 68)
Anger	1.49 (0.95)	2.01 (1.68)	1.58 (1.29)	1.94 (1.68)
Threat	2.28 (1.17)	3.34 (1.89)	2.19 (1.42)	3.34 (1.79)
Attitudes	5.51 (1.54)	5.82 (1.24)	5.96 (1.14)	5.15 (1.74)
Intentions	4.25 (1.77)	4.30 (1.70)	4.91 (1.38)	3.81 (1.91)

Note. Standard deviations are in parentheses.

Certainty. For certainty, there were no main effects detected for choice nor directness, nor was there a significant interaction. With the inclusion of a control condition, a planned contrast revealed a statistically significant difference, such that participants who received choice restricting messages (explicit and implicit) reported lower attitude certainty than participants who received an information only message (control), $t(328) = -2.74, p = .006, d = .47$. A second planned contrast revealed a nearly statistically significant difference, such that participants who received choice enhancing messages (explicit and implicit) reported lower attitude certainty than participants who received an information only message (control), $t(328) = -1.87, p = .063, d = .30$. Participants receiving information only messages reported the greatest attitude certainty.

Discussion

The first objective for Study 1 was to disentangle explicitness and choice-restricting language used in “controlling messages.” To that end, hypotheses 1 was partially supported. There is evidence to suggest that the choice-restricting language is the driving factor for perceived threat and anger. The messages themselves did not generate much anger or threat as evidenced by the low means, but there was enough to detect a statistically significant difference between choice-restricting and choice-enhancing language, regardless if the message contained explicit or implicit language. Such findings suggest that a slightly stricter definition of what constitutes a “controlling message” could prove beneficial. The quality of explicitness is in many cases beneficial, especially via mass communicated mediums (e.g., health promoting PSAs). Information delivered in clear, concise, and unambiguous language is preferable to unclear, verbose, and ambiguous language. Ultimately, if a carefully constructed message can be explicit without restricting choice, eliciting reactance could be avoided. The findings for attitudes were somewhat unexpected. Firstly, the implicit-choice-restricting message rendered the least

favorable attitudes, with no differences between the other conditions. One plausible explanation is that the indirect approach coupled with choice restricting language could have been incompatible and confusing. It's possible that being commanded to do something after reading an implicit passage proved to be incongruent and annoying. The implicit-choice-restricting message was also the worst performing message with respect to intentions, so it could just be poor meshing of the variables of interest for that specific combination.

The second objective aimed to answer the stated research question as to whether the arousal of reactance leads to greater or lesser certainty in the expressed attitudes toward the topic of a message. PRT literature has yet to analyze the effects of reactance on the confidence with which one has in an attitude, thus little is known on whether one's conviction is influenced by reactance inducing mechanisms, including the direction of attitude certainty. The results showed participants who read the information only message, that is, the non-persuasive (control) message, were most certain of their attitudes, suggesting that reactance does not increase certainty and may in fact reduce it. It is possible that any hint or subtle persuasion may force receivers to question how sure they are of their opinions toward a topic, regardless of thoughts and feelings toward a message. This finding needs further evaluation given the means for attitudes were much higher than expected. Promotion of plant based diets was expected to be counter-attitudinal as only a small percentage of Americans identify as vegetarians or vegans. Subsequent studies will need to ensure that messages are more reactance inducing and the topic of the message is less favorable than they were for plant based diets.

CHAPTER 4: Study 2

Study 2a

Given the more favorable than expected attitudes toward plant based diets assessed in Study 1, a preliminary study was conducted to identify a suitable counter-attitudinal topic to be used for subsequent studies. Topics in PRT literature are not necessarily counter-attitudinal and any reduction in attitude favorability is stimulated by the reactance inducing language rather than the topic of a message. However, because of the inclusion of the attitude certainty and metacognitive paradigm, a counter-attitudinal topic was deemed necessary. Tormala and colleagues, for instance, used counter-attitudinal topics such as the implementation of comprehensive examinations for university students (e.g., Tormala & Petty, 2002). The goal is to identify a topic that generates moderately unfavorable attitudes, a moderate to high level of attitude certainty, and a moderate to high level of relevance to the individual. Attitudes that are too unfavorable may be too difficult to move and attitudes that are too favorable are not counter-attitudinal, thus a sweet spot below neutral is ideal. Similarly, with certainty as well as relevance, low means scores aren't likely to be reduced any further by any manipulation, and certainty that is too high (i.e., extremely certain) is less likely to be moved toward neutrality, thus the four to six (indicating a neutral or "neither disagree or agree" to "agree") range is desirable.

Method

Design and Participants. In Study 2a, a total of 90 participants were paid 50 cents to take part in a 5-minute survey. Only individuals who identified as "conservative" or "moderate" on a political views filter (not very conservative or liberal) and republican or libertarian (not democrat) were requested to participate. Participants were asked to report on their attitudes, attitude certainty, and personal relevance about a number of topics that are typically considered

counter-attitudinal to people of their political persuasion. The topics included global warming, increased gun control, abolishing the electoral college, erasing student loan debt, changing the U.S. to an opt-out (presumed consent) organ donation system, the U.S. taking action to reduce people's meat consumption, defunding police departments, and Covid-19 mandates for government employees and college students attending public institutions. The sample included 51 individuals who identified as male, 37 female, one non-binary/gender-fluid, and one preferred not to state. The mean age was 42.59 ($SD = 15.42$).

Measures. See Appendix B for survey questions and prompts for Study 2a.

Attitudes toward the topic. The same scale used in Study 1 was employed for Study 2a for each topic.

Certainty. A single 7-point Likert item anchored by not certain at all/extremely certain continuum was used to evaluate each topic (e.g., “How certain are you of your opinion toward passing stricter gun laws?”). Tormala and colleagues have used multiple approaches for assessing attitude certainty (e.g., Tormala & Petty, 2002; Tormala et al., 2007), including a single item approach (e.g., “How certain are you of your opinion toward the comprehensive exam policy?”). Given the high number of topics surveyed, a single item approach was deemed more practical than a full four item scale, so to avoid respondent fatigue.

Relevance. A single 7-point Likert item anchored by strongly disagree/strongly agree continuum was used to evaluate each topic (e.g., “Stricter gun laws is a personally relevant topic to me”). Brehm (1966) noted that the relevance or importance of the behavior being eliminated or threatened is an important antecedent for reactance to occur. Important topics should be more conducive to eliciting reactance compared to non-important/irrelevant topics. Tormala and colleagues did not measure the importance of the topic for their counter-attitudinal messages.

However, they were not explicitly working in a PRT paradigm and it is a safe assumption that their specific population (i.e., college students) would generally be against their specific message topic (i.e., comprehensive exams). Like the single-item approach for certainty, assessing relevance in the same manner was deemed appropriate for the purposes of this study.

Results and Discussion

It was determined that anything with a mean score for attitudes over four (neutral) could be discarded as those topics wouldn't be considered counter-attitudinal. This criterion eliminated global warming, gun control, and COVID vaccination mandates. For certainty and relevance, a mean score between four and six was desirable and a large proportion of the sample falling in that interval indicated that respondents were certain enough but not so much that they were unlikely to be persuaded otherwise. Of the remaining topics, student debt was not relevant enough for a large segment of the sample. Organ donation had the largest proportion of the sample in the ideal range for certainty and meat reduction had the smallest proportion of the sample less than neutral on relevance. Therefore, it was determined that organ donation and meat reduction were the most appropriate topics to consider for further analyses (see tables 3-5 below for descriptive statistics for Study 2a).

Table 3

Study 2a – Descriptive Statistics for Attitudes Toward Topics

Topic	Mean (SD)	Less than 2 (Unfavorable)	2-4 (ideal)	6+ (Favorable)
Global Warming	4.80 (1.89)	9.8%	30.4%	40.2%
Gun Control	4.18 (2.30)	23.2%	26.8%	32.9%
Electoral College	3.81 (2.26)	28%	30.5%	29.3%
Student Debt	3.55 (2.23)	32.9%	33%	23%
Organ Donation	3.71 (1.89)	18.3%	47.6%	17.1%
Meat Reduction	2.79 (1.82)	42.7%	36.6%	11%
Defund Police	2.89 (1.89)	39%	37.8%	12.2%
COVID Vax	4.02 (2.31)	28%	24.4%	32.9%

Note. Attitudes above four (neutral) were deemed too positive (i.e., not counter-attitudinal) and were thus eliminated from further analyses. Similarly, topics which generated a high level of favorability based on percentage of responses six or seven (i.e., above 25%) also were deemed too positive and thus eliminated. Based on this criteria for attitudes, student debt, organ donation, meat reduction, and defunding police remained as potential topics.

Table 4

Study 2a – Descriptive Statistics for Attitude Certainty

Topic	Mean (SD)	1-3(too uncertain)	4-6 (ideal range)	7(extremely certain)
Student Debt	5.52(1.69)	8.5%	53.7%	37.8%
Organ Donation	5.23(1.50)	9.8%	62.2%	28%
Meat Reduction	5.70(1.44)	9.8%	48.7%	41.5%
Defund Police	5.60(1.55)	8.5%	56.1%	35.4%

Note. Ideally, certainty would not be too high, for those with extreme values might be difficult to move toward neutrality, thus scores falling between four and six are desirable.

Table 5

Study 2a – Descriptive Statistics for Relevance

Topic	Mean (SD)	1-3(Not relevant enough)
Student Debt	4.23(2.27)	41.5%
Organ Donation	4.43(1.89)	31.7%
Meat Reduction	5.37(1.75)	15.9%
Defund Police	4.87(1.81)	23.2%

Note. Attitudes that fall under neutral are unlikely to be relevant enough.

Study 2b

The aim of Study 2b is to test two message contexts drawn from Study 2a to determine which is most suitable for later studies. Study 2b also provides the opportunity to examine how freedom threatening messages impact attitude certainty in two new contexts. The results from Study 1 found that any attempt at persuasion, including a reactance inducing message, is more likely to test one's attitude certainty and thus reduce it rather than increase it. Study 1 used a context (i.e., plant based diets) that unexpectedly rendered rather favorable attitudes, as perhaps people believe plant based diets are positive whether or not they actually practice. Study 2b will use two additional contexts that have been pre-tested and shown to be counter-attitudinal.

Method

Design and Participants. Study 2b examined two separate contexts; opt-out organ donation (OD), and meat consumption reduction. There was one freedom-threatening and one control message for each context, setting up two independent-samples t-tests for each variable of interest. For each study, Mturk workers (144 for OD and 131 for meat reduction) were paid 50 cents to participate in a 5-minute study. All the messages were shorter than Study 1 in word count and all text was presented on one page. For the freedom-threatening messages, the language was explicit and choice-restricting (see Appendix C for full messages). For the OD group, 66 participants identified as Male, 76 as Female, and two preferred not to state, with a mean age of 45.29 ($SD = 14.49$). For the meat reduction group, 65 participants identified as Male and 66 as Female, with a mean age of 44.55 ($SD = 14.49$).

Measures. The same measures used in Study 1 for anger, threat, attitudes, and certainty were used for Study 2b. Additionally, attitude toward the message was included and was assessed by six semantic differential items asking participants their opinions about the structure of

the message and how it was presented. The items were bad/good, unimportant/important, stupid/smart, unlikeable/likeable, worthless/valuable, and useless/useful. The items were adapted from two similarly used scales by Crano and colleagues (2019) to examine anti-marijuana message evaluations.

Results

A series of independent sample t-tests were run on all dependent variables for both topics (see Table 6 below for a summary of means and SDs). For tests that failed to meet the assumption of homogeneity of variance, a Welch t-test was reported. For statistically significant differences, Cohen's d was reported to indicate effect size for tests with homogeneity of variance, whereas Glass's δ was reported for tests with heterogeneity of variance. The reliabilities for each DV are reported as follows (OD reported first and meat reduction reported second): Anger ($\alpha = .98, .97$), perceived threat ($\alpha = .95, .97$), attitudes toward message ($\alpha = .94, .96$), attitude toward topic ($\alpha = .98, .98$), and certainty ($\alpha = .93, .93$).

Anger. For organ donation, the freedom threatening message generated more anger ($M = 3.41, SD = 2.17$) than the control ($M = 1.73, SD = 1.32$), a statistically significant difference, $M_{dif} = 1.68, 95\% CI [1.09, 2.27], t(117.09) = 5.62, p < .001, Glass's \delta = 0.77$. For meat reduction, the freedom threatening message generated more anger ($M = 3.69, SD = 2.07$) than the control ($M = 1.40, SD = 0.97$), a statistically significant difference, $M_{dif} = 2.29, 95\% CI [1.75, 2.84], t(82.70) = 7.94, p < .001, Glass's \delta = 1.12$.

Threat. For organ donation, the freedom threatening message was rated as more threatening ($M = 4.80, SD = 1.84$) than the control ($M = 2.99, SD = 1.67$), a statistically significant difference, $M_{dif} = 1.81, 95\% CI [1.23, 2.39], t(142) = 6.19, p < .001, Cohen's d = 1.03$. For meat reduction, the freedom threatening message was rated as more threatening ($M =$

5.28, $SD = 1.68$) than the control ($M = 1.78$, $SD = 1.13$), a statistically significant difference, $M_{dif} = 3.50$, 95% CI [2.99, 4.00], $t(102.52) = 13.79$, $p < .001$, Glass's $delta = 2.08$.

Attitudes toward the message. For organ donation, those exposed to the freedom threatening message were more negative toward the message ($M = 4.65$, $SD = 1.53$) than those exposed to the control ($M = 5.38$, $SD = 1.19$), a statistically significant difference, $M_{dif} = -0.73$, 95% CI [-1.18, -0.28], $t(134.35) = -3.19$, $p = .002$, Glass's $d = 0.48$. For meat reduction, those exposed to the freedom threatening message were more negative toward the message ($M = 3.96$, $SD = 1.71$) than those exposed to the control ($M = 5.50$, $SD = 1.30$), a statistically significant difference, $M_{dif} = -1.54$, 95% CI [-2.07, -1.00], $t(111.19) = -5.73$, $p < .001$, Glass's $delta = 0.90$.

Attitudes toward the topic. For organ donation, those exposed to the freedom threatening message were statistically no more or less negative toward the topic ($M = 4.29$, $SD = 2.21$) than those exposed to the control ($M = 3.94$, $SD = 1.97$), no statistically significant difference was detected, $M_{dif} = 0.34$, 95% CI [-0.35, 1.03], $t(142) = 0.98$, $p = .33$. For meat reduction, those exposed to the freedom threatening message were statistically no more or less negative toward the topic ($M = 3.27$, $SD = 2.04$) than those exposed to the control ($M = 3.09$, $SD = 1.97$), no statistically significant difference was detected, $M_{dif} = 0.18$, 95% CI [-0.50, 0.86], $t(129) = 0.52$, $p = .60$.

Certainty. For organ donation, those exposed to the freedom threatening message were statistically no more or less certain of their attitudes ($M = 5.72$, $SD = 1.08$) than those exposed to the control ($M = 5.59$, $SD = 1.21$), no statistically significant difference was detected, $M_{dif} = 0.13$, 95% CI [-0.25, 0.51], $t(142) = 0.69$, $p = .49$. For meat reduction, those exposed to the freedom threatening message were less certain of their attitudes ($M = 5.35$, $SD = 1.34$) than those

exposed to the control ($M = 5.87$, $SD = 1.17$), a statistically significant difference, $M_{dif} = -0.52$, 95% CI [-0.96, -0.09], $t(129) = -2.38$, $p = .019$, Cohen's $d = 0.41$.

Table 6

<i>Study 2b – Means and SDs</i>						
Measure	Organ Donation		<u>Message Condition</u>			
	Restricting (n = 72)	Control (n = 72)	<i>M_{dif}</i>	Restricting (n = 61)	Control (n = 70)	<i>M_{dif}</i>
Anger	3.41 (2.17)	1.73 (1.32)	1.68***	3.69 (2.07)	1.40 (0.97)	2.29***
Threat	4.90 (1.84)	2.99 (1.67)	1.81***	5.28 (1.68)	1.78 (1.13)	3.50***
Message	4.65 (1.53)	5.38 (1.19)	0.73**	3.96 (1.71)	5.50 (1.30)	1.54***
Topic	4.29 (2.21)	3.94 (1.97)	0.34	3.27 (2.04)	3.09 (1.97)	0.18
Certainty	5.72 (1.08)	5.59 (1.21)	0.13	5.35 (1.34)	5.87 (1.17)	0.52*

Note. Standard deviations are in parentheses. *** $p < .001$, ** $p < .01$, * $p < .05$ for significant differences between conditions within context/topic. Comparisons between restricting and control messages for both topics also were analyzed via ANCOVA to test for significant covariates (gender and age). No significant covariates were detected nor were there differences in values between ANCOVA and t-test, thus the latter are reported.

Discussion

As expected, freedom-threatening messages for both topics resulted in greater anger, greater perceived threat, and less favorable attitudes toward the message compared to control messages. These results suggest that the manipulation was successful and the freedom-threatening messages aroused reactance. There were no significant differences for either topic on attitudes toward the topic. This is not unexpected considering that the topics are counter-attitudinal, thus messages need not be freedom-threatening for perceivers to have low baseline opinions of the topics. Mean scores for attitudes hovered right below the midpoint on a 7-point Likert scale, indicating that attitudes were on the negative side of the scale. There was no significant difference on certainty for organ donation; however, there was a statistically significant difference for meat reduction, with those receiving a freedom-threatening message

reporting less certainty. This finding is consistent with the findings from Study 1, suggesting that if any influence on certainty is present, reactance appears to be more likely to reduce certainty than increase it. Although freedom threatening messages elicit greater threat, anger, and less favorable attitudes toward the message, reactance may at least somewhat shake receivers' confidence in their attitudes. Perhaps, consciously or unconsciously, those affected by reactance know that part of their resistance strategy is suboptimal and illegitimate, thus slightly diminishing their certainty. Finally, an examination of effect sizes for each dependent variable reveals that the meat reduction message generated stronger effects than the organ donation message. Thus, subsequent studies will utilize the meat reduction context.

CHAPTER 5: Study 3

Study 3 introduces feedback conditions to examine how people's perceptions of their defensive strategies for rejecting a persuasive message impacts their attitude certainty. Given the plausibility that people who reject messages via suboptimal strategies (e.g., reactance) are not cognizant of their approach, informing them of the strategy may shake their confidence further and thus reduce their reported certainty. Multiple feedback manipulations were employed to investigate the effectiveness of different feedback formats. Crano and colleagues utilized multiple feedback options as a method for diagnosing a most appropriate course of action (Crano, Donaldson, Siegel, Alvaro, & O'Brien, 2019). Similar to the present research, there was no established template for generating feedback in their specific context, thus a similar approach was used.

Perceptions of own's own defensive strategy via metacognition should impact attitude certainty. Zuwerink-Jacks and Cameron (2003) found that people view resistance mechanisms such as counterarguing as more valid than mechanisms such as source derogation. This is likely because derogation, unlike counterarguing, is less likely to account for the content of a message. Given that people tend to view some resistance strategies as less valid than others, people who are prompted to reject messages based on freedom threat or reactance may view their strategy as illegitimate if they are made aware of their suboptimal approach to resistance. The hypothesis generated from this line of reasoning is stated as follows:

H1: Participants given feedback (direct or perspective taking) will report less certainty and greater intentions to engage in the behavior advocated by the message compared to those not given feedback.

Method

Design and Participants. Each participant in Study 3 read the freedom-threatening meat reduction message from Study 2b. After reading the message, participants were given different types of post message feedback. The first feedback condition was a short and automatic message stating that experts had analyzed the participants responses and found their reasons for not liking the message to be superficial and based on reasons such as not paying attention or feeling the message was trying to tell them what to do. The second feedback condition asked participants to take the perspective of the other side of the argument and to help by providing ways to successfully argue in favor of government interventions to reduce meat consumption (a counter-attitudinal position). The third condition was simply a control and stated that the message they read was one of several health-based messages being tested and reviewed for further use (see Appendix D for feedback conditions). In total, 265 participants were recruited through Mturk and were paid 70 cents to participate in a 7-minute study. The mean age was 41.50 ($SD = 13.06$) and 112 participants identified as Male and 153 identified as Female.

Measures. The same attitudes toward the message, attitude toward the topic, and certainty measures used in Study 2b were used in Study 3. Like Study 1, an intentions measure was used, however, two sub-scales were used. The first was aimed at cognitive intentions: “I intend to seek more information about the issue;” “I intend to give more serious thought about the issue;” “I intend to find out what I can do to help solve the problem;” and “I intend to talk to close others about the issue.” The second sub-scale was aimed at behavioral intentions: “I intend to support interventions aimed at reducing meat consumption;” “I intend to vote for policies aimed at reducing meat consumption;” and “I intend to try reducing my meat consumption.”

Results

A series of one-way ANCOVAs were used to test the dependent variables of interest (see Table 7 for means and SDs). The reliabilities for each DV are reported as follows: Attitudes toward the message ($\alpha = .96$), attitudes toward the topic ($\alpha = .97$), and certainty ($\alpha = .92$), cognitive intentions ($\alpha = .93$), and behavioral intentions ($\alpha = .91$).

Attitudes. Prior to the feedback manipulation, participants all read the same message. The two attitude measures were merely used as a cover to base the feedback on. Participants were expected to have low attitudes based on the messages being pre-tested and given the message was freedom threatening and the topic was counter-attitudinal. The means for both attitude measures confirmed expectations (attitude toward message: $M = 3.93$, $SD = 1.63$; attitude toward topic: $M = 3.12$, $SD = 1.88$).

Certainty and Intentions. For certainty, there were no significant difference between conditions ($F[2, 262] < 1$, $p = .95$). For cognitive intentions, there were no significant differences between conditions ($F[2, 262] = 1.15$, $p = .319$). For behavioral intentions, there were no significant differences between conditions ($F[2, 262] < 1$, $p = .72$).

Table 7

Study 3 – Means and SDs

Measure	Feedback		
	Automatic/Direct ($n = 92$)	Perspective taking ($n = 74$)	No feedback ($n = 99$)
Certainty	5.42 (1.41)	5.38 (1.44)	5.45 (1.39)
Intentions–Cognitive	4.01 (1.75)	3.63 (1.82)	3.99 (1.79)
Intentions–Behavior	3.37 (1.85)	3.29 (1.72)	3.17 (1.78)

Note. Standard deviations are in parentheses.

Discussion

Study 3 attempted to advance the discussion of attitude certainty in a PRT context through the mechanism of feedback. Results from Study 1 and Study 2b provided some evidence that reactance stemming from reading a freedom threatening message may reduce attitude certainty. The metacognitive perspective holds that perceptions of resistance performance can enhance or hinder confidence in attitudes. While strategies such as counterarguing are viewed as strong, strategies such as source derogation are viewed as weak. Rejection of a message based on felt reactance could reasonably be viewed as a suboptimal or weak strategy for defense. The results from Studies 1 and 2b, with respect to attitude certainty, seem to support that notion. However, it cannot be determined that receivers were fully capable of articulating their reasons for their rejecting the message. Study 3 used two distinct forms of feedback to discern whether or not certainty could be reduced further. One feedback condition explicitly stated that receivers were rejecting the message based on their reactance, thus the feedback helped receivers articulate a likely or at least plausible strategy. The other feedback condition asked receivers to actively help argue against their own attitudinal position. It was predicted that one or both of these conditions might result in reduced certainty and increased intentions to act contrary to one's originally stated attitude. The results of the study did not support these predictions as no condition differed from another. Perhaps any reduction in certainty stemming from the experience of reactance left little or no room for any further reduction. Being made aware of one's resistance strategy or having been suggested to the possibility appears to have little bearing on certainty. Perspective taking as a feedback strategy also failed to elicit change relative to a no feedback condition.

CHAPTER 6: General Discussion

Psychological reactance theory (PRT; Brehm, 1966) postulates that people fundamentally value their autonomy and when faced with an ostensibly persuasive attempt, they may feel their autonomy is being compromised and will respond by rejecting the attempt. One of the most frequently cited and studied aspects of persuasive attempts over the past two decades is the extent to which a message is controlling (e.g., Dillard & Shen, 2005; Miller et al., 2007). Messages that are highly controlling pose greater threats to a receiver's sense of autonomy and are thus likelier to elicit reactance than messages that are low controlling. Thus, it is well understood that to avoid reactance, message designers should avoid overly controlling language. However, researchers also have noted the value of HC language (e.g., clarity and efficiency) and have sought to identify strategies to capitalize on its virtues, while negating its shortcomings. Strategies such as restoration postscripts (Miller et al. 2007), narratives (Gardner & Leshner, 2016), other-referencing (Bessarabova et al., 2016), inoculation (Richards & Banas, 2015), and irony (Staunton et al., 2020) have been offered as possible solutions to the dilemma. Unfortunately, ambiguity regarding the value of HC messages and our understanding of the composition of such messages, specifically impersonal messages (e.g., public service announcements), persists.

Another ambiguity that exists in the literature is the effect reactance has on attitude certainty. Given the outcomes that are generally associated with reactance, it could be assumed that reactance is tantamount to successful resistance. However, resistance to persuasion may not succeed when attitude certainty remains unaccounted for (Tormala & Petty, 2004). Resistance to persuasion may either increase or decrease attitude certainty (Tormala & Petty, 2004; Tormala et al., 2007). Understanding the nature of certainty as it relates to reactance is essential given that

attitudes that are held with greater certainty are more likely to predict future behavior and are more resistant to future persuasive attempts (Petty & Krosnick, 1995). If generating reactance results in increased attitude certainty, the dangers associated with controlling messages may be even greater than originally thought. Three studies were conducted to examine these stated ambiguities.

Study 1 aimed to assess both ambiguities. Dillard and colleagues (1996) argued that influence messages vary on two dimensions: explicitness and dominance. Their finding that dominance and not explicitness was the driving force behind reactance in interpersonal settings served as motivation to dissect persuasive messages in non-interpersonal settings (i.e., mass communicated messages). The present study characterized explicit messages as those featuring language that stressed the importance of a topic, stressed the urgency for action, and stated a single best course of action. Findings from Study 1 supported the idea that dominance (i.e., choice restricting language) was in fact the culprit for inducing reactance. Dillard and colleagues further argued that explicitness, bears little responsibility for inducing reactance, and is actually a valuable component of an influence attempt, as it can help foster relational bonding.

While most research in the PRT literature has consistently coupled explicitness with choice-restricting language to create HC messages, seldom has explicitness purposely been paired with choice-enhancing language (i.e., autonomy-supportive) as these two factors are generally set in opposition. The findings from Study 1 illustrate that with respect to mass communicated messages, explicitness can be extricated from dominance and can be coupled with choice-enhancing language to generate messages that are clear and efficient yet non-threatening. Researchers who argue in favor of HC messages should be careful to extol the virtues of explicitness as distinct from dominance. It should be noted that while it is essentially impossible

to successfully conceal persuasive intent when utilizing explicit language, most people are probably well aware that virtually every message they receive will invariably try to persuade them of something. So perhaps the degree of persuasive intent associated with explicit language is not nearly as concerning as the active limiting of behavioral options. Far too often explicitness is merely guilty by association with dominance.

Study 1 and Study 2b tested the effect that reactance has on attitude certainty. One could reasonably propose that reactance could either increase or decrease certainty. It is reasonable to assume that a threat to one's autonomy could bolster one's confidence in rejecting a message. It is equally plausible that reactance may test one's resolve by shaking confidence, and the presence of reactant outcomes is a defense mechanism compensating for one's suboptimal reaction to the message. The results from both studies provide evidence for the latter assumption, as those exposed to a high threat message reported lower certainty compared to those exposed to a non-persuasive message.

A final study attempted to use feedback mechanisms to examine whether certainty could be reduced further. Tormala and colleagues have used false feedback in numerous studies and have found evidence that certainty can be affected in either direction (e.g., Tormala et al., 2007). There were two feedback conditions used in Study 3. One was direct and explicitly informed receivers that their rejection of the message was based on illegitimate means. The other asked receivers to try to take the perspective of the message creator and to offer ways that they thought could improve the message. Compared to a no-feedback condition, neither feedback alternative revealed a change in attitude certainty. It is possible that the mere experience of reactance reduced certainty to a point that it would be difficult for any further reduction. However, more

research on different feedback strategies across different topics would first need to be conducted to make any sort of determination.

Limitations and Future Directions

There were several limitations to the current set of studies. First, the manipulations for Study 1 proved insufficient. Although, choice restricting language generated (statistically significantly) greater anger and perceived threat than choice-enhancing language, the mean scores indicated that anger and threat were slightly lower than what is typically found in PRT literature. Further, the topic of the message (plant based diets) was too favorable for the purposes of the research. Many PRT studies use topics that are generally agreeable (e.g., the importance of exercise) and message rejection is a product of the delivery (i.e., choice-restricting nature) rather than the content or topic; however, a counter-attitudinal position was needed for the incorporation of the certainty measure, as research on attitude certainty and metacognition is focused on defending one's pre-existing attitude against a counter-attitudinal message (e.g., comp exams to college students). Subsequent studies aimed to rectify this dilemma and succeeded to a degree. However, the final topic, although different from plant based diets, was at least somewhat related. Future research should incorporate multiple topics to ensure the certainty effect is not specific to a single topic.

Aside from topical differences, more contexts and presentation formats need to be studied. The current set of studies focused on impersonal forms of communication and did so through text based messages. The effect sizes for certainty were modest, but may be larger in interpersonal settings or messages that are directed, targeted, and tailored for specific audiences. Formats such as video or face to face settings also may exhibit greater impact and more

meaningful effects given these mediums ability to connect with receivers or viewers in a way that text based messages simply cannot.

Another limitation was the makeup of the participants, with all being recruited through Amazon Mturk and CloudResearch. Although, Mturk has been found to be a reliable source of data collection (Paolaaci & Chandler, 2014; Rouse, 2015), it would be prudent to include offline samples to compliment the online participant pool. Furthermore, participants from Studies 2 and 3 were recruited based on political or ideological leanings to ensure the topics of the messages were counter-attitudinal. All such participants reported being conservative leaning and were generally republican or libertarian. Future research could target different groups of people (e.g., democratic or progressive leaning) with counter-attitudinal messages, while incorporating multiple strategies for collecting data from both online and offline participants. Topics were purposely chosen to be counter-attitudinal for these studies to align with the attitude certainty literature, but it also could prove useful to focus on topics that generate ambivalence or on people who report being ambivalent toward a specific topic (e.g., marijuana use) and see how messages affect attitude certainty. Finally, although the feedback conditions used in Study 3 failed to generate differences in attitude certainty, other alternative forms of feedback could be presented in various contexts. For example, participants could generate their own counter-arguments and have those rated as insufficient by a false feedback mechanism.

Conclusion

The results from the present research expanded on findings from previous research, which proposed that influence messages can vary on two distinct dimensions: explicitness and dominance (Dillard et al., 1996). Messages that have been designated as “high controlling” often conflate the two dimensions. However, it is vitally important to distinguish the two dimensions

and understand the differential effects each may have on the receiver. Where Dillard and colleagues (1996) utilized an interpersonal context, the present research utilized a non-interpersonal context; and rather than conceptualizing dominance on a continuum from submissive to dominant, the present research tested choice restricting (i.e., dominant) language against choice-enhancing language (i.e., autonomy-supportive). Ultimately, combining direct or explicit terms with autonomy-supportive language may allow message designers to compose messages that enhance persuasion (Burgoon et al., 1975) and promote information seeking behavior (Leshner et al., 2008), all the while avoiding reactance. The present research also incorporated attitude certainty to the PRT literature. Initial findings suggest that the experience of reactance is more likely to lower certainty than it is to increase it. Given the fact that reactance is generally something that the message sender wants to avoid, the finding that attitude certainty is not bolstered is somewhat comforting. At the very least, eliciting reactance doesn't appear to present the added challenge of dealing with an increased, perhaps irrational, confidence. Best case, with lowered certainty, the door might still be open for attitude change. The challenge now is understanding how long that door is open and finding the right strategy to take advantage of the opportunity.

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Appendix A: Experimental Manipulations Study 1

Direct/explicit

The message on the next page presents some facts and statistics regarding the benefits of a plant based diet. The importance of proper nutrition cannot be overstated and the evidence in favor of a plant based diet is **clear, compelling, and conclusive**. People who have adopted a plant based diet find it simple, easy, and cost effective once they get used to it. Eliminating or reducing animal products in favor of fruits, vegetables, and non-animal protein sources is easy to do. There is **no question** that a plant based diet is the best diet for healthy living and longevity, especially compared to the standard western diet. **The best time to start a plant based diet is now – delaying is only detrimental to health.**

Indirect/implicit

The message on the next page presents some facts and statistics regarding the benefits of one approach to healthy dieting. There is **some evidence** that a plant based diet can help people achieve the proper nutrition they need. Many people who have adopted a plant based diet find it works for them once they get used to it. Eliminating or reducing animal products in favor of fruits, vegetables, and non-animal protein sources is doable. A plant based diet is **one of many** diets that may help with healthy living and longevity. **Regardless of when a plant based diet is started, it can potentially yield benefits.**

Choice

After reading the message, you can decide for yourself whether or not a plant based diet is right for you. Every person has their own unique cultural and lifestyle considerations, so no one can make the decision for you. You know yourself better than anyone else so the choice is yours and yours alone. The information presented simply provides you with an option in case you are interested.

No Choice

After reading the message, you will know some of the main arguments in favor of a plant based diet and how you will benefit from adopting this diet regardless of individual, cultural, or lifestyle considerations. There is absolutely no doubt you should start a plant based diet. The information presented provides you with the knowledge you must have to get you started.

Informational

The message on the next page presents some facts and statistics regarding a plant based diet. A plant based diet is one of numerous types of diets that are popular in the United States.

Main Message

A plant based (PB) diet is one that generally focuses on foods that are fresh and constituted in their whole and natural state. Such a dietary approach emphasizes foods including fruits, vegetables, and other nature based foods (e.g., whole grains, nuts), and excludes or limits animal based products (e.g., meat, dairy) as well as refined and processed foods (e.g., added sugars, white flours).

A PB diet generally counters that of the average American diet, which consists of a high intake of animal products and processed foods. At this time nearly 69% of adults in the United States are overweight or obese. Research has shown that adopting a diet with foods rich in fiber such as leafy greens and fruits, aids in the fight against weight gain. PB diets also can help those who are already overweight or obese to lose weight. For example, in a typical study, participants assigned to a PB diet (compared to a control group) lost more weight (9.25 pounds on average) after one year.

A PB diet can also lower one's risk for chronic diseases such as heart disease, type 2 diabetes, and certain types of cancer. Avoiding animal products can reduce the risk of heart disease by 55%. One typical study found that people who followed a plant based diet had a 34% lower risk of developing diabetes; A different study showed that people who followed a PB diet had a 22% lower risk of developing colorectal cancer; one of the most common cancers associated with consumption of animal based products.

Finally, a PB diet can help slow or prevent the decline of cognitive functioning, especially in older adults. The high number of plant compounds and anti-oxidants found in fruits and vegetables are associated with a reduction in cognitive decline. One major review with over 31,000 people found that high consumption of fruits and vegetables led to a 20% reduction in cognitive degenerative diseases such as dementia and Alzheimer's. Diets based around animal products are typically devoid of the essential nutrients that help combat degenerative diseases.

Appendix B: Survey Questions/Prompts for Study 2a

General Introduction

There are a number of important topics that are currently being debated in the United States. We are interested in your perspective on these issues. Please respond to the following questions as honestly and accurately as you can.

1. Should additional resources and tax dollars be used to combat global warming (e.g., investment in renewable energies; sustainable agriculture and forest management)?
2. Does the United States need stricter gun control laws (e.g., increased background checks, age limits, banning certain weapons)?
3. Should the United States abolish the electoral college and just use the popular vote to determine presidential elections?
4. Should federal student loan debt be eliminated/cancelled?
5. Should the United States change from an opt-in system to an opt-out (presumed consent) system? (opt-in = actively choosing to register as an organ donor; opt-out = automatically registered as an organ donor).

Currently, the USA has a system where people opt in to become organ donors. They have to actively choose to register as an organ donor. Some have proposed that the USA should go to an opt-out system where everyone is automatically presumed to be an organ donor. People would then actively unregister themselves.

6. Some have suggested the government take action toward reducing people's consumption of meat such as implementing carbon taxes on meat and funding the development of meat alternatives.
7. People have suggested that some funding be moved away from police departments and into community resources (e.g., mental health and social work services).
8. Should employers or universities be able to mandate COVID vaccinations?

Appendix C: Messages for Study 2b

Organ donation HC message:

It's Time for a Change to the U.S. Organ Donation System

Changes must be made to the current system for organ donation in the United States.

Change that starts with you! Currently, the United States operates under an opt-in, first-person consent system in which people must actively choose to become an organ donor. Given the shortage of viable organs and the fact that over 107,000 Americans are currently on transplant waiting lists, it's clear that the system is broken and its **IMPERATIVE THAT IT'S FIXED IMMEDIATELY**. A change to an opt-out (presumed consent) system is **ABSOLUTELY NECESSARY** and is something that **YOU REALLY MUST SUPPORT**.

An opt-out system similar to the ones used in European countries such as Spain or Belgium, would take the decision making process out of the hands of the individual and automatically enroll every licensed driver as an organ donor. For those who elect not to be donors, the burden of unenrolling as a donor is their responsibility. Consider that over 90% of U.S. adults are in favor of organ donation but only about 60% are registered. The evidence for needing an opt-out system is **OBVIOUS** and it's the **BEST STRATEGY** for increasing the supply of organs for those in need.

The choice is clear. **YOU HAVE NO CHOICE**. With 17 people dying every day awaiting a transplant, **it's up to you to do your part to change the U.S. to an opt-out system!**

Organ donation control:

Organ Donation Systems

Approaches to organ donation vary. Some countries have adopted an opt-in system, whereas others elect to use an opt-out system. An opt-in system requires people to actively register as organ donors, typically when they apply for or renew a driver's license. An opt-out system automatically registers people to be donors (presumed consent) and it is up to individuals to unregister if they choose not to be considered a donor.

Those who argue in favor of an opt-in system tend to point out that an individual's decision to actively register is legally binding and that the idea of an individual having to affirm one's decision to donate aligns with the concept of individual rights.

Those who argue in favor of an opt-out system point to the fact that over 90% of U.S. adults are in favor of organ donation but only about 60% are registered. Supporters suggest that the gap between attitudes and behavior could close if the U.S. were to change to an opt-out system.

There are strong arguments for both sides of the debate. Currently, the United States operates under the opt-in system.

Meat reduction HC message:

Now is the Time for Change to the American Diet

Changes must be made, starting with you! Americans eat too much meat. The overconsumption of meat is unsustainable for both health and environmentally based reasons. **Important government interventions** aimed at reducing meat consumption in the form of tax increases for both consumers and producers of meat and funding of meat alternatives are **NECESSARY** and something **YOU REALLY MUST SUPPORT.**

The overconsumption of meat increases the risk for chronic diseases such as heart disease, type 2 diabetes, and certain cancers. It is also a huge burden on the environment considering the amount of land and water that is required for animal agriculture, which greatly contributes to the greenhouse gas emissions and waste that impacts climate change.

Evidence in favor of government interventions is **CLEAR, COMPELLING, AND CONCLUSIVE.** Changing the way Americans eat by deterring meat consumption is the **BEST STRATEGY** for combatting health and environmental issues.

At this point, there is **NO CHOICE.** There is **ABSOLUTELY NO DOUBT THAT INTERVENTIONS ARE NECESSARY** to change the way Americans eat. **YOU MUST ACT AND BE PART OF THE SOLUTION! DO YOUR PART AND TAKE RESPONSIBILITY** for your health and the environment by learning more about and supporting government initiatives aimed at transitioning America to a low emissions food system.

Meat reduction control:

Dieting

Finding a diet that works for you can be tough. The pace of everyday life can make it challenging to make sure you are getting the nutritional value you need to stay fit and healthy. Plus every individual has unique preferences and daily schedules, which factors into the decision making process. Every year, efforts to improve their well-being leads many Americans in search of healthier approaches to dieting.

Some popular diets, to varying degrees, promote robust meat intake and the reduction or elimination of carbs and sugar. Some of the more popular diets include Atkins, Keto, Paleo, and the South Beach diet.

Other popular diets, to varying degrees, refrain from meat intake and promote more of a plant based approach to eating. Some of the more popular diets include vegetarian, vegan, and pescatarian diets.

Every year new diets or modifications to existing diets are introduced in the quest to find the optimal path to healthy living. Whether one elects to choose a more meat based diet or a plant based diet, there are strong arguments for both sides of the ongoing diet debate.

Appendix D: Study 4 Feedback Conditions

Automatic/Direct Feedback

It seems you didn't like the message. Researchers have studied the reasons why some people don't like messages such as the one presented and have found evidence that these people reject messages based on **superficial reasons such as not paying attention, feeling that the message was trying to tell them what to do, and that their freedom to choose was being restricted.** The researchers also found that these people generally don't focus much on the content of the message, thus rejection of the message is likely not based on the merit or quality of the arguments presented.

Perspective Taking/Devil's Advocate Feedback

It seems you didn't like the message. Researchers have studied the reasons why some people may like or dislike messages such as the one presented and have noted the **importance of being able to look at an issue from a perspective different than your own. Doing this can help people at least understand each other's arguments – even if they do not generally agree with the other person.**

We'd like you to try improving the message. Given the task of improving the message in favor of government interventions to reduce meat consumption, how might you do it? Which arguments would you focus on or what might be some better arguments to add? Please provide 1-3 quick ideas on the best way to improve the message. Your responses only need to 1-2 sentences per idea.

No feedback

The message you just read was one of several messages that are being tested and reviewed for further use. On the next page you will be asked just a few more questions regarding the message and your thoughts on it.